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THE PRACTITIONER

THE LEADING MONTHLY MEDICAL JOURNAL

No. 611.—Vol. CII., No. 5. MAY, 1919.

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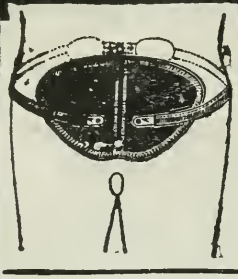

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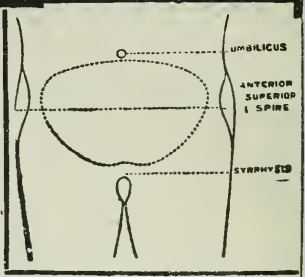

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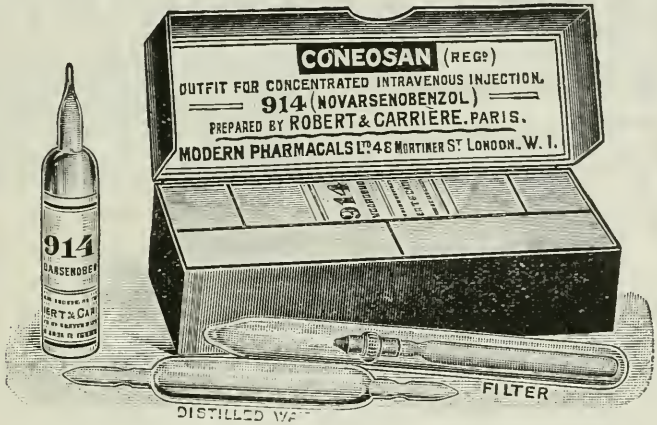

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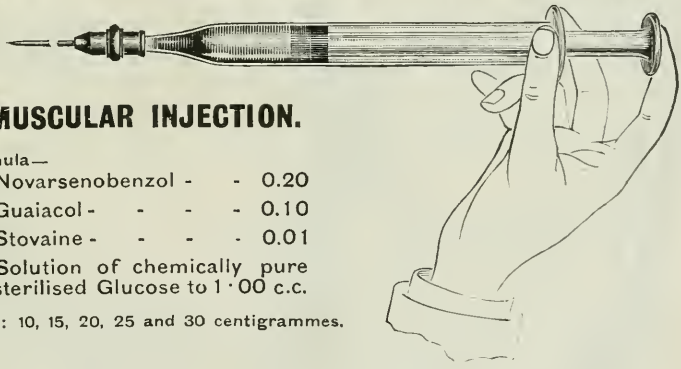

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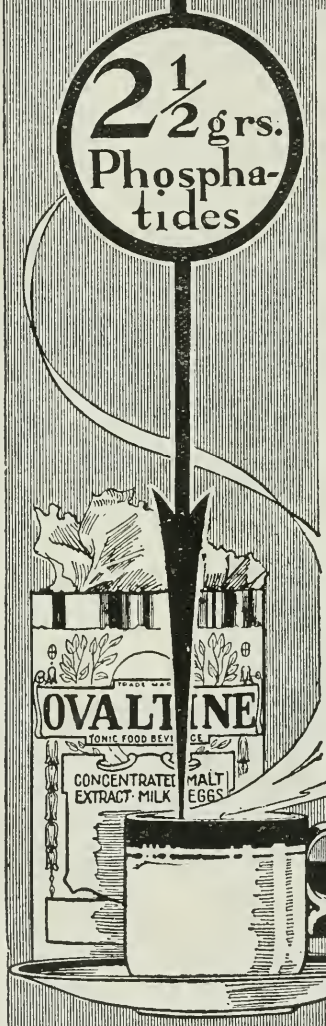

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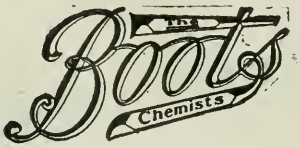

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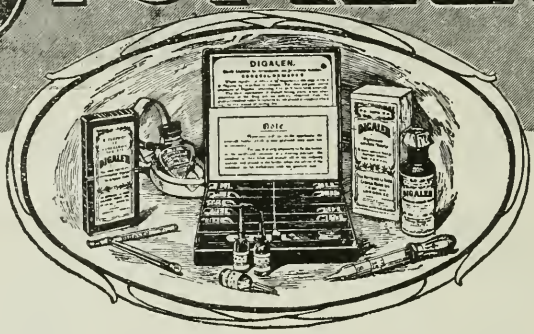

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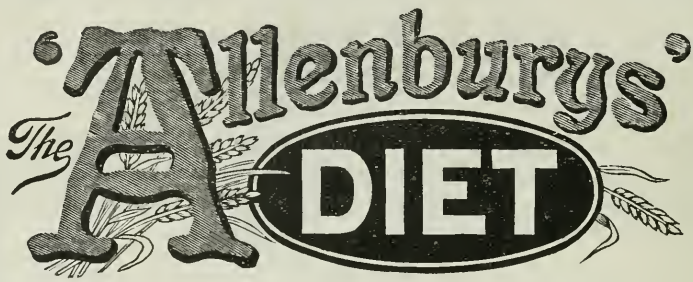

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From THE LANCET, Jan. 4, 1919.

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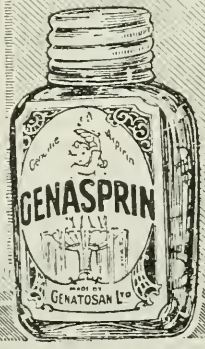

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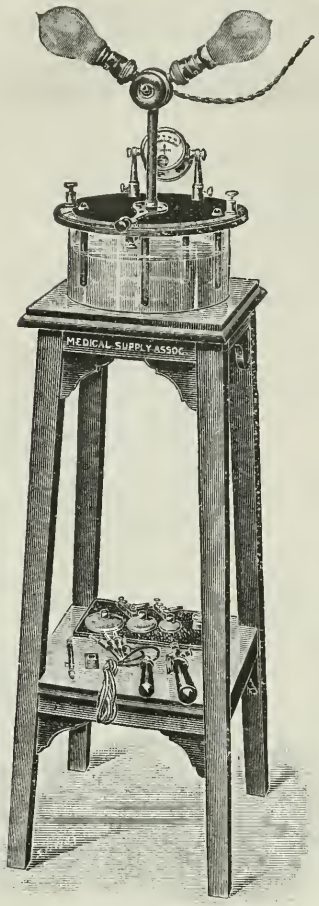

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HOEFFTCKE'S AMBULATORY EXTENSION APPLIANCE AND WAR SPLINT.

By C. A. HOEFFTCKE, 7, *Harley Street, W.*1.

Fig. 1.—Standing on fractured femur.

Fig. 2.—Fractured lower third of femur.

These two illustrated cases, walking on their fractured limbs, show clearly the difference between the treatment of severe fractures with the Thomas's splint and my Ambulatory appliance and war splint.

The reason I invented the war splint in the beginning of the war was, that I was not satisfied with the action of the Thomas's splint, of which I had considerable experience.

I maintain that the ring cannot be fitted so as to keep the pressure solely on the tuber-ischium and surrounding gluteal muscles like my splint does, as the patient wriggles down and the ring slips up, with the result that considerable pressure has to be borne on the os pubis instead, which in most cases is unbearable if any extension is to be maintained.

This painful pressure defeats the object of the Thomas's splint, as the muscles contract and counteract the extension. Nearly 90% of the war cases where I was called in by the surgeons were treated with a Thomas's splint for a considerable time, and in some of them it was put on in the aid-post, like the femur case shown above, with the result of the fractures either being ununited or in bad position.

Even in these most difficult cases the treatment with my splints has been the means of getting union with the fragments in good apposition, and most of those patients maintain that had my splint been applied in the first instance considerable time of suffering would have been spared them.

A full description and illustration of these two cases can be read in my announcements in The Lancet, Nov. 9th, 1918, and Feb. 8th, 1919.

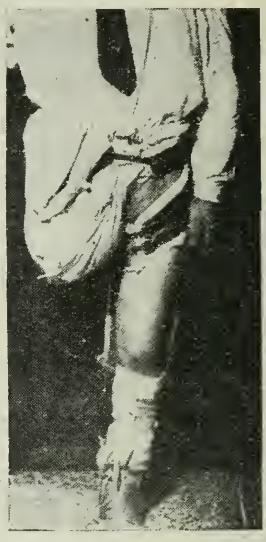

Fig. 3.—Hoefftcke's War Splint.

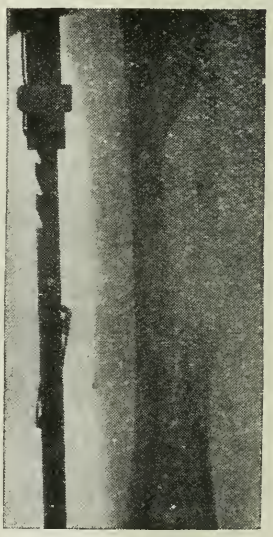

Fig. 4.—Fractured tibia; much loss of bone.

THE PRACTITIONER.

MAY, 1919.

EDITORIAL.

As our subscribers are doubtless aware, a new volume (the 103rd) will begin with our July number, when we hope to be able to provide our readers with a greatly enlarged Journal, and to introduce several improvements which will ensure THE PRACTITIONER maintaining its present foremost position in medical journalism.

THE ERECT POSTURE.

BY LEONARD WILLIAMS, M.D.

Physician to the French Hospital.

MAN, which here especially includes woman, has paid a high price for the erect posture. The very word "erect" suggests something fine, noble, admirable, desirable; and, as the French have it, such things *se payent cher*. "Erect" derives from the Latin *regere*, to rule, and from this root we get such words as "regal," "rajah," "regent," "reign," implying sovereignty; and others such as "rectitude," "correct" and "direct," which denote attributes proper to a sovereign. All of which is very appropriate; for there is no doubt that the erect posture has contributed in a very large measure to man's superiority over the other mammals; his kingship could scarcely have been evolved had he remained a quadruped. We are to suppose that about three million years ago, the orthograde primate abandoned his hitherto exclusive frugivorous habits, to become a hunter of small animals. He then needed his hands to catch and carry his prey, and he gradually ceased to use his fore-limbs for locomotion. Thus was the upright gait evolved. The new method of progression brought enormous advantages; but the concomitant drawbacks, even in the beginning, could not have been negligible, and time has served to accentuate them. In perfecting the adaptive mechanism the mills of God grind exceeding slow.

So long as his trunk was carried horizontally, the primate's internal viscera rested upon strong supports. The weight of his heart and lungs was sustained by the bony thorax; and the heavier among his abdominal organs, the liver, spleen, kidneys and stomach, found a sufficiently solid floor upon the floating ribs. The uterus and ovaries rested upon the bony pelvis, while the easily displaced intestines had gravity to aid the anterior abdominal wall in maintaining their mechanical stability, for the primate was higher behind than he was in front. As soon as he adopted the erect posture all this was changed, and so changed as to invite, indeed almost to compel, trouble. To

speak in heraldic terms, the organs which were previously "couchant" have now become "pendant"; instead of resting, they swing. In the case of the thoracic viscera the damage is not serious. The diaphragmatic floor, with its constant rise and fall, opposes a formidable obstacle to ptosis or prolapse; nevertheless, "the horizontal heart sitting on the diaphragm," which radiography has revealed to our astonished view, is sufficient to show that even here the upright position is fraught with possibilities of anxious evil.

But it is upon the abdominal organs that the real toll is levied. Stomach, liver, spleen, pancreas, kidneys with their supra-renals, are all deprived of their stable emplacements. They hang; gravity pulls at them, and, just when they are at their lowest, down comes the diaphragm to give them yet another push towards the only haven now open to them, the true pelvis. How many are the kidneys which have been found wandering, disconsolate and mischievous, in the region of the appendix; how many the stomachs which have butted brutally upon the bladder; how many the livers which have fallen from the grace of the costal arch to aid in the downfall of the right kidney? To use the word "uterus" is to suggest retroflexion or retroversion, and the same association of ideas compels us to murmur "prolapse" or "congestion" whenever we whisper "ovary."

But the real desperado in this drama of displaced viscera is surely the large intestine. Originally, it was probably a fæcal reservoir, in the same sense as the bladder is a urinary reservoir. It may have had other functions, all of which were adequately, painlessly and harmlessly performed so long as the body was carried horizontally. But with the erect posture it became transformed from a blameless and probably useful structure into the most serious enemy which menaces civilized man. From a horizontally placed rectangular tubal conduit allowing a free flow, it became transformed, potentially at any rate, and in a large number of cases actually, into a vertical mathematical monstrosity with a heavily festooned transverse portion pressing upon the subjacent viscera, suspended between two acute angles, which effectually prevent normal movement; a stagnant, dislocating, intoxicating cesspool for which it is impossible to find a present excuse. The man who is wise as well as upright corrects the effects of his uprightness by wearing a *ceinture*.

Nor is this quite all. In the horizontal position, two most important external organs, namely, the thyroid and the male genitals, were protected; whereas in the erect they are exposed to all the slings and arrows of outrageous attack.

That is one side of this interesting ancestral medal. The other is more attractive. Among the simpler physiologico-anatomical results of the erect posture, such as those just referred to, I can find but one only which is obviously an advantage. But that is an important one. I mean the gain in rapidity of the drainage from the brain and cranial structures generally. In the horizontal position this drainage is sluggish; indeed, when the primate hung his head from fatigue, it must have depended entirely upon the suction action of inspiration whereas upright man invokes the powerful aid of gravity to assist

him in ridding his upper storey of effete matters. It is not inconceivable that this difference may explain the distinction between the "intelligence" which we concede to the dog and the "intellect" which we regard as the monopoly of his master. The distinction would be greater still if the master did not so frequently nullify the difference by wearing tight high collars to impede the all-important drainage. A constricted neck means a muddled head; not infrequently it connotes a bald one—and a pimply face.

It would be an interesting, though probably a futile, investigation to enquire into the complicity of the erect posture in the production of melody in the human voice and of the appreciation of melodious sounds by the human ear. Certain it is that the making of music is confined to bipeds, and its full appreciation to those among them who are unfeathered. It is at least possible that neither of these developments could have been effected in the absence of the more efficient drainage from the head and neck which the erect posture provides. There is nothing so full of revelation as the human voice. It reveals character, breeding, temperament and temper. The untutored tones of the quadruped recognize their lineal descendants in the cacophonic cadences of the coster.

On the pure profit side of the account there is the goodly heritage in art, science and literature, all of which we know to be the proud monopolies of man—monopolies which not only proclaim his sovereign superiority over the quadrupeds, but afford joyful compensations for much which in their absence would be utterly insupportable. Among these, art was the first to come, as in races which are degenerating it is the first to go. Art, in its essence, is the appreciation of beauty; for it is the desire to represent and reproduce beauty which is the beginning of all manual cunning. With the invention of writing, literature was bound to follow; and at a long interval and with a halting gait came science, the child of necessity, its mother, and curiosity, its father.

Now, it may seem axiomatic to say that art was begotten of the erect posture. It is a general belief; but the exact *modus operandi* has not, I imagine, until recently been clearly explained. How did the upright position cause the sense of beauty to germinate and fructify? Dr. B. S. Talmey answers this interesting question in a learned paper recently published.[1] The answer is a purely sexual one, and may be briefly stated as follows. In the quadruped the sexual excitant reaches the male through the olefactory nerves. Nor has the connection between the sexual act and the activity of the nasal mucosa in man escaped the physiologist. It is all that remains of a once all-powerful function, now atrophied from disuse. In quadrupeds the excitant, the vulval effluvia, is on the same plane as the receptor, the male nasal mucosa. The access from the one to the other is easy and direct. If the two animals are now placed in the erect posture, the difficulty of this access immediately becomes apparent. The excitant is not only a long way removed from the receptor, but the directness of access is interfered with by the fact that the vulva is concealed between the thighs and the gluteal folds. The invitation

addressed *viâ* the olefactory nerves is no longer received by the male mechanism of propagation. The race is in danger of extinction. Something else must be evolved. And so it came to pass that the appeal was transferred from the olefactory nerve to the ocular, with the result that female beauty was evolved.

Such was, in all probability, the origin of the sense and appreciation of the beautiful in Nature, and such, consequently, the origin of the desire to reproduce it—the germ cell, so to speak, of creative art. In order to reproduce the beauties of Nature, man had to re-orient his muscles. The functions of the strong right arm had already passed beyond the mere hewing of wood and drawing of water to the comparative delicacy of weaving weapons. Now, however, a new interest was unfolded, which demanded the cultivation and the highest degree of dexterity and cunning. To realize how completely man fulfilled his mission in this direction we have only to look around us, especially if we permit our vision a retrospective glance at Ancient Greece. But, as is unfortunately so often the case, the debit side of the account is there, and it is so large as seriously to mar the beauty of the balance. It is represented not so much by art, in the usual sense of the term, as by material inventiveness, which is a different expression of the same progressive and productive impulse.

We read that "in the beginning God made man upright, but they have sought out many inventions." Now, of these many inventions, the window and the cooking-stove have proved themselves to be the most deadly. The translucent window, closed rain or shine against the cold, after enjoying enthusiastic sway for countless generations, has at last been arraigned and convicted of being one of mankind's most deadly contrivances. That the cooking-stove is scarcely less lethal is an unpleasant fact to which we are only just awakening. And its very unpleasantness renders it difficult of acceptance. Let us therefore for a moment, however brief, look it squarely in the face.

A pundit is a learned censorious man without imagination and devoid of humour. A parrot is a stupid scansorial bird which, when educated, develops echolalia. The principles of dietetics in this country have been propounded by pundits and promulgated by parrots, with the result that this, which is surely the most important of all subjects, when taught at all, is debased to the level of an agglomeration of emblems, ciphers, devices, mottoes and other meaningless and misleading outpourings, iterated and re-iterated *usque ad nauseam*. Of the real truth there is scarce an inkling. And yet, for the last sixty years, the real truth has been there for him who runs to read. When the cause of scurvy was discovered, logic and common-sense should have combined to condemn the cooking-stove. But neither logic nor common-sense reside either in pundits or parrots. The pundits continued to babble albumens and carbo-hydrates, and the parrots to cackle calories.

The element in foodstuffs whose absence produced scurvy was treated as an inconvenient intruder into the settled calm of the priestly proximate principles. It was therefore shortly and sharply compressed into a bottle of lime juice, where it remained, until recently

rescued by a sympathetic American physician. This element has now expanded itself into many substances, of which two at least have been vaguely differentiated. These vitalities are very suitably called vitamines by the cognoscenti: by the pundits, who are at last obliged to admit their existence, they are, characteristically enough, qualified by the adjective "accessory." These substances are found to be absent from cooked foods and present in large quantities in the uncooked. Their functions are not yet clearly defined, but it is admitted that they are essential to growing children and are at least highly desirable to the maintenance of the adult human economy in its fullest efficiency.

The cooking-stove, then, is convicted of being the insidious adversary of adolescence. But this by no means comprises the whole horrible indictment. It imposes upon the rising generation those disabilities which are fast reducing the British nation to a C 3 standard. For cooked foods require little or no chewing, whereas the uncooked require vigorous mastication. See the difference between a raw apple and a baked. The absence of mastication in the young accounts for the carious teeth and pyorrhœic gums which cause so much suffering and unsightliness in the adult. And it does more: it spells adenoids and tonsils and appendicitis; it deprives the thyroid and pituitary glands of their proper stimulation, making people stupid who ought to be bright.

Nor is even this quite all. Contrary to what the pundits assert, uncooked foods are digestible, whereas cooked foods, with all their olefactory allurements, are relatively indigestible. This is a fact of which anyone might have satisfied himself since about 1834, when Dr. Beaumont published his observations on the gastric digestion carried out through the fistulous opening in the stomach of Alexis St. Martin.[2] Dr. Beaumont showed that boiled eggs required from three to three and a half hours for their complete digestion, whereas (experiment 43) two roasted eggs and three ripe apples had completely disappeared from the stomach at the end of one hour. But this fact was an inconvenient one; it failed to accord with the prejudices and preconceived ideas of the pundits, and so, although it has been abundantly supported in recent years, it has been carefully suppressed. Verily, these vitamines are terrible fellows. They are the Bolsheviks of the servile state. In the light which they afford, the whole subject of dietetics will have to be re-written. When that is done, when we shall have delivered ourselves from the potted palaver of the pundits and their concentrated essences; when we shall have cast off the shackles and the caloric cackles of the parrots, it will be found that the true dietary of man resides in those kindly fruits of the earth for which we perseveringly, though perfunctorily, praise the Lord, while relegating them to an ignoble post-prandial position. We shall then be able to realize the intimate relationship which exists between cookery and constipation. Intestinal stasis is due to overfeeding, and overfeeding is the result, not of greed, but of need. The need is that of the economy which, in its determination to obtain a sufficiency of those vitaminous principles which have been reduced to a minimum

by the cook, ingests a whole hefty haystack in order to be sure of the necessary needle. Of itself, the upright posture would never have succeeded in compassing the disastrous downfall of the transverse colon. It needed the concomitant weight of the convivial, but cunningly catastrophic cooking-stove.

Physiological man is adaptability personified; but when pathological, his adaptability declines in direct ratio with the degree of his departure from the normal. The young are very adaptable; the middle-aged less adaptable; the old are very unadaptable. These are simple sayings, which in theory no scientist would dispute; yet, in practice, the pseudo-scientist, the pundit and the parrot, whose horizons are bounded by a test-tube, are disputing them every day. Physiological man may eat what he likes and drink what he likes, and he pays the bilious penalty whether he likes it or not. Young men may indulge in dietetic revels, enjoy succulences, accord the accolade to sirloins and even dive into barrels of malmsey, with impunity, if only they will attend to the repairing clauses and take their castor oil —even as they have spent their money—like gentlemen. But when physiology gives place to pathology, when youth retreats before advancing years, all this impunity and immunity goes by the board. And so, consequently, should the cooking-stove. The proper diet, for pathological man and old, is the natural diet of primitive man. Not the sad satiety of sap and pap with which suffering stomachs are now pseudo-scientifically surcharged, but simple fare and natural, such as man ate in the days of his innocency and simplicity, before pride in his own performances had lost him his perspective and his piety.

There is only one recorded case of a man who abandoned the upright posture to seek salvation in the horizontal. And he found it. This was Nebuchadnezzar the King, who, being distended with regular meals of undischarged cooked foods, became so toxæmic that he developed grandiose notions and seriously believed himself to be the equal in knowledge and power with the God of Shadrach, Meshach and Abednego. And so it came to pass that he was made to walk on all fours and to eat herbs. This physiologico-therapeutic discipline wrought a complete cure; for it is written that at the end of the days his reason and understanding returned to him, and he extolled the Lord whose works are truth and His ways judgement. Dietetic truth spells vitamines, and the judgement for destroying them is disease and death. You may wear motley so long as you are young and well; but if you fail to substitute fustian before the evil days come, then it will not be long before the mourners go about in the streets.

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OBSERVATIONS ON LICHEN PLANUS.

By J. M. H. MACLEOD, M.D., F.R.C.P.

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During the past year the contributions to dermatological literature of importance or of special interest have been singularly few, and almost the only diseases which have attracted attention have been those which have occurred in the armies on active service, namely, parasitic conditions such as scabies and pediculosis, septic affections such as impetigo and impetiginized seborrhœic dermatitis, and static disturbances from cold and interference with the peripheral circulation such as trench foot.

It has seemed to me, however, that at home, among those who have had to watch and wait, the protracted strain of anxiety and overwork has resulted in an increased incidence of dermatoses of nervous origin, of which the most prominent has been lichen planus. I propose, therefore, this year to discuss briefly the present state of our knowledge of that interesting disease, instead of summarizing the dermatological literature of the past twelve months, as has been my usual custom.

In this country lichen planus, though one of the rarer skin affections, has always attracted more than its share of interest, partly from the fact that it was here that it was originally described, in 1869, by Erasmus Wilson. The characteristics of the eruption, both of the sub-acute localized type with its glistening polygonal papules with their peculiar lilac tint or larger hypertrophic warty lesions, and of the acute generalized type in which the papules tend to aggregate to form patches not unlike chronic eczema, and in which the eruption is accompanied by the most distressing itching, require no special description here. What we are mainly concerned with is the question of the causation, the prognosis, and the treatment.

ÆTIOLOGY.

With regard to the ætiology the following may be cited as predisposing causes :—

Age.—It is most common in adult life between the ages of 40 and 50. The youngest case which I have seen was in a boy aged 4 years. Cases are on record in younger children, and even in infants; but there is some doubt with regard to the latter as infants are subject to several forms of dermatitis which tend to leave lichenoid patches, such as papular urticaria and miliaria rubra.

Sex.—It is more common in females than males, in the proportion

of about three to two.

Social Position.—It is usually asserted to be more common in private than in hospital practice, but it is doubtful whether this is not because, in its milder forms, it is comparatively trivial and patients of the hospital class are, therefore, less likely to seek advice regarding them.

The actual cause is not yet fully understood, but the general consensus of opinion favours a relation with nervous derangements, and is supported by the following arguments :—

(*a*) It has been observed frequently in nervous patients, in those suffering from neurasthenia, from the result of some debilitating illness with nervous sequelæ such as influenza, or from physical or mental work, worry, or anxiety, and is specially common in women about the menopause.

(*b*) It has been known to follow close upon some profound nervous shock; as in a case recently under my observation, in which a pilot in the Air Force, aged 20, developed an acute widely-spread attack of lichen planus—a disease from which he had not suffered previously—a few days after being greatly distressed by witnessing the "crash" of a friend and helping to extricate him, fatally injured, from his blazing machine.

(*c*) The subjective symptoms may be out of all proportion to the extent of the skin involved, and in acute cases they may be so severe and maddening that they have been known to lead to mental derangement and even to suicide. In extensive cases also the whole skin may be irritable, and may show a tendency to factitious urticaria.

As no definite organic changes in the nerves have been observed, it has been suggested that the affection is a functional disturbance; but on this assumption it is difficult to account for the histological changes in the skin, namely, the dense cellular infiltration in the corium and the thickened, stretched epidermis.

Certain writers consider that the nervous disturbances simply act as predisposing factors, and that the lichen planus is due to some toxin circulating in the blood; in support of this view they point out that in some of the acute cases the onset is like an exanthem and associated with general symptoms suggesting a toxæmia, such as rheumatic pains, sore throat, furred tongue, and slight pyrexia. Cases have also been described in which lichen planus has supervened in the course of some other disease of toxic origin, such as diabetes, and the histology of the lesions somewhat suggests the action of a poison which has reached the skin viâ the blood-stream.

PROGNOSIS.

The prognosis is uncertain. In sub-acute cases it is practically impossible to predict how long the lesions will take to disappear,

for in one case they may fade in a few weeks or months either spontaneously or as the result of treatment, while in another new lesions may keep coming out and prolong the eruption indefinitely.

In acute generalized cases a cure may be effected in four to six weeks, but it frequently takes much longer, and even when the greater part of the eruption has gone, residual patches may be left, or recurrences may supervene either at regular intervals or irregularly in connection with some general derangement of health.

TREATMENT.

The treatment depends on whether the case be acute and generalized, or chronic and confined to one or other of the usual areas.

General Treatment.—There is no drug which can be regarded as a specific. In the past arsenic has had a great reputation in this connection, but its action is uncertain, and it should always be employed with caution. In sub-acute cases it is occasionally of benefit, but whether from direct action on the disease or as a general nerve tonic is undecided; in acute cases it may do more harm than good. On no account should it be given to patients who suffer from indigestion, and it must be discontinued should any symptoms of irritation of the intestinal tract supervene. It is best prescribed in the form of the liq. sodii arseniatis, 5 to 10 minims in plenty of water t.d.s. after meals; but may be given also in the form of the organic preparations of arsenic, such as soamin and orsudan, 2 to 3 grains injected twice a week.

On the whole, mercury has given better results than arsenic. It may be used in the form of hyd. cum cret., 1 to 2 grains t.d.s., or hyd. biniodid. $\frac{1}{16}$th of a grain in pills t.d.s. and the amount gradually increased.

In the more acute generalized cases antimony, in the form of the vinum, 5 to 10 m. t.d.s., is of value in reducing the tension in the skin and soothing the irritation.

For the relief of the itching, phenacetin, 10 grains t.d.s., may be of service, and, where it is excessive, lumbar puncture and the withdrawal of a few c.c. of the cerebro-spinal fluid is sometimes of distinct value.

In acute cases the general comfort of the patient must be carefully considered and, where the irritation is severe, confinement to bed may be advisable.

In chronic cases a simple tonic ***régime*** with iron, strychnine, or phosphoric acid, or the employment of fattening remedies, may be of greater benefit than any specific drug; while the concomitant nervous condition should be dealt with by fresh air, exercise, massage, change of air and occupation, etc., as the case indicates. Any defect in the general health, such as derangements of the digestion or disturbances of the liver and kidneys, must be treated on general medical principles.

Local Treatment.—In the acute generalized cases the first indication is to reduce the irritation, and for this purpose sedative anti-pruritic

creams, lotions, and powders give the best results.

The following calamine cream is of service :—

Calaminæ preparatæ - - - -	℥i.
Zinci oxidi - - - -	℥i.
Acidi carbolici - - - -	ℿv.
Aquæ calcis - - - - -	℥i.
Olei amygdalæ - - - -	℥i.

It should be smeared on the skin and followed by the application of a zinc oxide and starch dusting powder to which has been added 2 per cent. of camphor.

Lotions of tar and lead may also be of benefit, such as—

Liquor. picis carbonis - - -	ℿx.
Zinci oxidi - - - - -	℥ii.
Liquor. plumbi subacetatis - - -	ℿx.
Aquam - - - ad	℥i.

Liquor. plumbi subacetatis - - -	ℿxv.
Liquor. picis carbonis - - -	ℿx.
Aquæ calcis - - - - -	℥ss.
Oleum amygdalæ - - - ad	℥i.

In the less acute generalized forms relief may be obtained from medicated baths containing creolin ½ oz., borax and bicarbonate of soda each 2 ozs., or bran 2 lbs., to 30 gallons of warm water; or from tepid sprays followed by cold douches.

In the sub-acute cases ointments are permissible and should contain sedatives such as carbolic acid, tar, or lead. Useful formulæ are as follows :—

Acidi carbolici - - - -	ℿx.
Hyd. perchloridi - - - -	gr. ii.
Ungt. zinci oxidi - - - ad	℥i.

Liquor. picis carbonis - - -	ℿx.
Liquor plumbi subacetatis - -	ℿxv.
Ungt. zinci oxidi - - - ad	℥i.

Hypertrophic lesions are specially resistant; in such cases I have found the most satisfactory remedy to be the X-rays, a pastille dose, followed, if necessary, by another in six weeks, and, failing them, plasters containing salicylic or pyrogallic acids, continuously applied.

When the lesions are present on the mucous membranes of the mouth as whitish specks, patches or streaks with a dendriform arrangement, soothing remedies such as gargles of potassium chlorate should be prescribed, and on no account should any attempt be made to destroy them by caustics for fear of setting up malignant changes. Irritating foods, such as hot drinks, and pungent substances in general should be avoided and smoking prohibited; the mouth should be kept as clean and hygienic as possible, and the teeth looked to, sharp edges dealt with, and any defects in them made good.

URINARY DISTURBANCES — INCONTINENCE AND FREQUENCY — IN CHILDREN AND ADULTS: THEIR CURE BY ELECTRICAL METHODS.

By FRANCIS HERNAMAN-JOHNSON, M.D.

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The child who "wets the bed" has been a problem throughout the ages. Our ancestors mostly regarded the matter as an example of infant depravity, and acted accordingly. This belief persists to some extent to the present day, and there are a certain number of purely lazy children in whom punitive therapy succeeds.

At the present time the treatment generally advocated may be summed up as follows:—(1) Removal of irritation, *e.g.*, phimosis; worms. (2) Limitation of fluid in the latter portion of the day. (3) Drugs, *e.g.*, strychnine as a tonic; belladonna as a so-called "specific"; medicine to alter the composition of the urine, such as citrate of potash; thyroid. (4) Education. (5) Suggestion.

The above measures, either singly or in combination, often succeed; as often, they fail, and to some of them objection may be taken. Circumcision should not be lightly undertaken unless there is definite ground for it, other than the hope of curing the nocturnal incontinence. Often the cure is not accomplished, and the operative risk has been taken. It is no argument to say that the chances of death or serious complications are only 1 in 5,000, or 20,000: this is little consolation to the 20,000th mother who loses her child. The use of belladonna to the limit of safety is justifiable for a few weeks as an attempt to "break the habit." Its use over months and even years cannot be too strongly condemned.

An article, published in The Practitioner some little time ago by Dr. Hector Cameron,[1] on the subject of enuresis in children laid great stress upon education and suggestion as a means of cure. Not everyone is, however, possessed of the necessary patience and tact. Moreover it is a somewhat lengthy business, and if it fails much time has been lost.

My personal experience of the treatment of enuresis was, until the beginning of the war, almost entirely confined to children. The little patients who were sent to me had all been dealt with for prolonged periods on classical lines—although the educative and suggestive part of the treatment had probably not always been very skilfully carried out.

I found these cases almost all amenable to very simple electrical measures, viz., the application of rhythmically interrupted sinusoidal or faradic current through the region of the bladder for 15 minutes daily for a period of two to four weeks.

Nocturnal incontinence is sometimes a sequela of an attack of

poliomyelitis. In one of my first electrical cases, a dozen years ago, I was asked to treat the buttock and abdominal muscles in a severe case of infantile paralysis which had occurred at the age of six. The child, 14 when I saw her, had wetted the bed ever since the attack, and was unable ever to stay away from home. I failed to do any material good to the paralysed muscles, but, much to my surprise, the enuresis disappeared within a month, and never returned. Since then I have had similar cases, mostly successful; but a good result cannot be counted on with the same degree of probability as in the "idiopathic" type.

In the latter part of the year 1914, as a result of the recruitment of large numbers of men, a new type of case was brought prominently before my notice, viz., the young adult afflicted with enuresis. About this time I began to organize at the Cambridge Hospital, Aldershot, an electric-therapeutic department, which eventually grew to very large proportions, and at one period furnished the electro-therapeutic service for the whole command. At my suggestion, the military authorities circularized all the hospitals, camps, and barracks in the command with a list of maladies amenable to electrical measures. Nocturnal incontinence figured in this list, and to my surprise its issue was followed by a perfect avalanche of cases. They were mostly youths from 18 to 22, and they gave a history of lifelong enuresis. As a class they were quite up to average, both physically and mentally, but their habits made them objectionable to their comrades, so much so that, if they could not be cured, it was impossible to retain them in the army.

I approached these cases with considerable confidence, treating them on the lines which I had found successful in children; but, to my disappointment not more than 25 per cent. were successes. At the time I attributed the failures to the following causes:—

(1) The fact that the habit was of so much longer standing than in the case of children.

(2) In the rush of the times investigation on general lines could not be carried out to a proper extent, and causes of irritation might easily be missed.

(3) I suspected that a considerable proportion were either malingering, or at least did not want to be cured. They knew that, if uncured, they would be invalided.

Early in 1916, I asked my colleague, Dr. J. Burnett Rae, who had recently organized a psycho-therapeutic clinic at the hospital, to investigate these cases from his point of view. His findings were very interesting. It appeared that almost in all cases the sexual feelings were quite undeveloped, even in youths of 21 to 22, in spite of a normal appearance of the external genitals.

As an experiment, all cases were for a time treated by him by suggestion, but only about 10 per cent. benefited. So the electrical department took them on again, but Dr. Rae continued to make occasional cures in cases which had resisted electricity.

About this time it occurred to me that in children enuresis often

ceases spontaneously about puberty—*i.e.*, among other things coincidentally in the development of the prostate. I determined to try to stimulate this organ electrically in these incontinent cases and chose a high-frequency condenser electrode for the purpose. It consisted of a small test tube, filled with water, and corked. Through the cork was thrust a stiff wire, having a loop on the outside for attachment to the lead from the solenoid. The test tube was vaselined and introduced about 2 to 3 inches into the rectum. It was then connected with the generator, and the high-frequency current turned on for 15 minutes. The treatment was given daily.

An improvement in results was very soon evident. Cures rose from 25 to 60 per cent. On the psychical side, not all cases—or, indeed, many—could be investigated, but such as were gone into showed that, *pari passu* with the disappearance of the incontinence, there was a development of normal sexual feeling; in more than one case the result was an early marriage! The time taken to effect a cure was about three weeks. As a rule, if there was no improvement in the first 10 days, the case did not do well. A few, however, ultimately recovered after two to three months, when hard X-rays to the lumbar region were combined with the high frequency. It is difficult to say, what part, if any, was played by the X-rays.

A word is necessary to explain what cases were regarded as cured. All patients apparently successfully dealt with came up a fortnight after their last treatment, and, if still free from enuresis, were entered as cures. As they were otherwise sound, they were mostly sent abroad very soon, but in about 10 per cent. of the cases we were able to follow them up for three to four months, and did not come across any instance of relapse.

An interesting point is that the 1916 cases differed from the earlier ones in having been, without exception, thoroughly examined, and subjected to routine treatment. This was so because, in the meantime, a genito-urinary department had been established at the hospital, and all cases were examined and treated there before being passed on to me. The increase in successes from 25 to 60 per cent. was therefore in reality more striking than appears at first sight, for it is possible that some of the early cases would have recovered under routine treatment, whereas this possibility was excluded in the later ones.

On my return to civil practice at the beginning of 1917, I was able to interest some of my medical friends in the matter, and during the past 12 months I have treated several cases of urinary disturbance, mostly distressing frequency of micturition in women. In these it is particularly necessary to look for causes, for their organism is so constructed as to present more possibilities of reflex disturbance than that of men; kidney mobility, resulting sometimes in kinks and twists of the ureter, is a common source of trouble. Coli infection of the urine is more frequent than in the male; rectal constipation and disturbances of a menstrual nature are not seldom a contributory cause.

However, the fact remains that while, on the one hand, a cure

cannot be effected without attention to these conditions—if present—yet, in many instances such attention is not, in itself, sufficient; and often there is no discoverable cause. These patients do well upon a combination of the high-frequency rectal electrode with rhythmical sinusoidal current to the abdomen, always provided that it has been found possible to remove all obvious sources of irritation. When is there excessive pain and bleeding during the menstrual periods, especially when these are unduly prolonged, and tend to come at too frequent intervals, it is often impossible to cure the urinary condition without first, or at any rate contemporaneously, dealing with the dysmenorrhœa. In my experience the latter, especially when of the hæmorrhagic type, can be successfully dealt with in most cases by small doses of hard X-rays given two or three times a week in the menstrual intervals, for three to four months.[2] A regulation of excessive ovarian activity is what is aimed at, there being no desire to abolish the periods. There is no risk to the skin. I have seen miserable wrecks of femininity transformed in a few months into lusty and cheerful women with normal periods. This is a method of treatment which should certainly be more widely known and used than is at present the case.

If it is asked *how* electricity cures nocturnal incontinence, undue frequency of micturition, etc.; one can only reply very vaguely. We know that electricity is a powerful stimulant to growth and development, so that in the case of youths, in whom bed-wetting is a kind of vicarious sexual act, the high-frequency current probably acts by waking into life the activities normal to their age but hitherto latent. Apart from such specific effect, however, electricity is in general a restorer of that mysterious something known as "tone." It has not only a stimulating, but a *regulating* action upon vital processes, enabling it at times to accomplish apparently contradictory results, exciting where there is need of excitation, soothing where there is a necessity for quietude. This is merely another way of saying that electricity does for the human body, in a specialized way, what sunlight and fresh air and other natural agencies are known to do in a general way, *i.e.*, help towards a restoration to the normal. After all, it is the innate tendency of the organism to regain the normal, no matter in which direction it may have swung away from it, which makes treatment possible.

In conclusion, I should like to repeat the therapeutic truism that any agent capable of doing good may also, if wrongly used, do harm. This applies even to air and sunlight. Much more, then, does it hold good in the case of electricity, the indiscriminate but legally permitted use of which by unqualified and ignorant persons is one of the anomalies of our time.

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NEUROSES AND PSYCHO-NEUROSES OF THE SEA.

By ALAN F. GRIMBLY, M.A., M.D.

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It has been my object in this article in THE PRACTITIONER to give an account of those functional diseases of the nervous system that are encountered at sea in this crisis of the nation's existence, and to record observations and suggestions made as the result of the study and treatment of numerous cases ashore and afloat.

Many and valuable contributions have been made to our professional literature on the subject of war-neuroses met with in the various theatres of activity on land, but comparatively few medical men have arisen to speak on behalf of the sailor. It must be remembered that our Navy under present conditions, like the Army, is partly composed of a number of men to whom the sea is not a profession and often is an alien element—men who have been accustomed to leading sedentary lives in city and country, ideas of life afloat never occurring in their thoughts. Can it be a matter of surprise that such men sometimes fail as fighting units when brought into the presence of that terrible triumvirate—war, wind, and water—and yield to the strain and stress of an unnatural existence? Frequently it is the very inactivity of life that occasions disaster. Day after day spent in cold and dreary seas, the monotony and discomfort only broken by the greater discomfort and, maybe, physical illness attending severe weather, and, above all, the interminable watching and waiting for the action which never materializes, all tell upon the nervous system, particularly if there is a defect therein. The stress of action is great, but as great, if not more so, is the stress of inaction; for while it is human nature to struggle for existence, a life of solitude is foreign to all but the insane. The sea will assuredly detect the flaw in the unstable organism, and will try severely the healthy; under the supreme test of mental and physical endurance of naval warfare the strong may succumb, and the nervous system with inherent defect of structure will be doomed.

CLASSIFICATION.

It is not an easy task to group these neuroses of war under definite headings for purposes of description, mainly on account of the haphazard use of the nomenclature of nervous disease; but I entirely dissent from the opinion of those who regard classification as impracticable and unnecessary. The causes are very numerous, and are, in part, identical with those in civil life, in part new, arising out of

abnormal conditions. Some cases present symptoms familiar to every physician, and others manifestations of disease of body and mind comparatively uncommon. Many are cured by generally accepted methods of treatment, while others are remarkably resistive to all efforts, resistance frequently increasing with the length of duration of the disease. I propose to discuss these neuroses of the sea under the titles of neurasthenia, shell shock, and hysteria, and, furthermore, to describe a condition of nerve exhaustion arising in connection with the present war.

Neurasthenia.—That much-abused term, neurasthenia, has long served as the scapegoat of medical ignorance. Neurasthenia is the typical neurosis of fatigue, characterized by rapid exhaustion of body and mind, and attended by a multitude of symptoms. The causes may be defined broadly as hereditary and acquired. The sea has no mercy upon the individual who is neuropotentially unsound. A man may be capable of earning his living in the city and playing his part in social life, but the defect in his organism is brought to the surface when he is placed on board ship, and he enters the ranks of the neurasthenics. The man with neuropathic tendencies and a strong family history of mental disease, nervous trouble or excesses of various kinds should never be sent to sea, for he is bound to fail by reason of his own structural defect. In many instances we meet with neurasthenia in men of sound physique with no neuropathic predisposition, who have yielded to the strain. Exposure to cold, solitude, separation from home and relations, pecuniary anxieties and worries of divers kinds, great responsibilities and the stress of action and again of inaction, have a profound influence on the nervous system, and tend to cause disintegration.

The development of the neurasthenic state may be insidious, but often is rapid in its course, progressing steadily until some determining factor breaks down the control; almost without exception the attributed cause of the disorder—heavy gunfire, explosion of a torpedo or some harrowing spectacle—is merely the last link in the chain of causation.

Suspicion of the onset of neurasthenia may often be aroused by the presence of pains in the back and limbs, disturbances of the alimentary system, recurrent attacks of headache, loss of weight (progressive), anæmia, increased knee-jerks, a diminished capability for work and rapid fatigue. These symptoms may grow until a definite neurosis is established.

Of the various types of this disease the spinal form is more commonly met with in the Navy. The patients complain of more or less severe pain in the back and interscapular region, dull pains in the limbs, particularly in the lower extremities, and tenderness over the spine, never very pronounced. Rachialgia may be constant, but more frequently is remittent in nature, the pain reaching a maximum every second or third day and never disappearing completely in the intervals. A stoker suffered from severe aching pains in both feet and ankles, the lumbar and lower dorsal regions and over both scapulæ. He had been in a ship which was torpedoed, being subsequently immersed in

water for several hours, and stated that these pains had been present, at times agonizing in degree, since he was discharged from hospital three months previous to my seeing him. The reflexes were slightly exaggerated, and the facial expression was anxious and worried; treatment with drugs had had no beneficial effect. He responded well to suggestion, and made a rapid recovery.

Headache is a very constant and troublesome symptom. Vague shooting pains rapidly shifting from point to point, or a diffuse aching pain may be experienced, but there is usually definite localization to a particular area, more commonly frontal or parietal than occipital or temporal. Many men have complained to me of a feeling of a tightly fitting steel band fixed around their head, a type allied to Charcot's " casque neurasthénique."

Disturbances of co-ordination are common, and are revealed in hesitating speech and shaky, irregular writing. Neuralgic pains in the limbs, in the intercostal spaces, and in the neighbourhood of the upper cervical vertebræ are often complained of, and in some cases dizziness is a most disconcerting symptom.

Hyperæsthesia is very frequently present, especially to painful sensations, particularly along the spine and in relation to the joints, being better defined in the neighbourhood of the smaller peripheral than in that of the larger proximal joints. In one O.S., it was possible to map out a definite series of painful spots along the ventral borders of the tibiæ. The phenomenon of the " painful testicle " was well-marked in a stoker, aged 32. He complained of a constant pain in his right testicle, unaffected by local treatment; no enlargement or hardness was felt. The pupils were somewhat dilated, and the knee-jerks increased. The angles of the mouth were depressed, and the man looked older than his actual age. He was very depressed, and had made up his mind that he was suffering from an incurable disease. Perversions of feeling are also frequent and consist of numbness, and sensations of pricking and burning in the limbs, chiefly in the fingers and toes. Moreover, alterations in deep sensibility may exist, consisting in definite pain or in vague feelings of internal discomfort. Anæsthesia is never present.

The deep reflexes are nearly always increased; in fact, I have never seen a case of neurasthenia in which the knee-jerks were absent, and seldom one in which there was not exaggeration. The superficial reflexes may be increased, but are frequently unchanged. The pupils are often dilated and occasionally unequal.

Great muscular weakness with fatigue on the slightest exertion is characteristic of the neurasthenic syndrome. This fatigue is rapid in onset, and lasts for a considerable time, and is commonly accompanied by tremors and coarse twitchings in the muscles of the face, trunk, and limbs. The tremor is of a fine fibrillary nature, being increased on voluntary movement, and is best seen in the fingers of the outstretched hand. It is often present in the muscles of the lips, eyelids and tongue, and is noticeable when the patient attempts to speak. Loss of power is progressive, and often leads to paresis of certain groups of muscles,

but I have never observed actual paralysis. The asthenic phase was well-marked in an A.B., aged 40. This man, a " hostilities " rating, sustained a minor burn in an explosion, and subsequently developed neurasthenia. There was considerable loss of power in the muscles of the arms and legs, chiefly the latter, and fatigue was induced on comparatively slight effort. The skin was clammy and moist, and the palms of the hands were always damp. He complained of numbness and tingling sensations in the terminal phalanges of the index, middle and ring fingers of the left hand, and the middle finger of the right, and of shooting pains in the hand, wrist and forearm which changed their site from day to day. Tremor was definite in both hands, and was increased on voluntary action. The facial expression was one of anxiety, the angles of the mouth depressed and the face excessively lined, causing a prematurely aged appearance. Bilateral ptosis was found, and both pupils were dilated. There was tremor of the lips and tongue, increased when the patient spoke, and the knee-jerks were exaggerated. Intermittent frontal headache was present, and the ocular muscles became readily fatigued on reading. The pulse tension was low, and the temperature always subnormal. Muscular wasting was slight, and confined to the forearm and calf of the leg. The mental attitude was depressed, and the man despaired of recovery.

In many instances the heart is involved, with palpitation, very rapid pulse and irregularity of beat. Dyspnœa and præcordial pain are often associated, generally more pronounced after the man has " turned in " at night. I met with an interesting case of pseudo-angina in an engine-room artificer, aged 24 years. He suffered from agonizing anginal seizures with surprising regularity every third day, terminating in a semi-conscious state. The reflexes were slightly increased and the pupils dilated, but otherwise nothing abnormal was noticed in the intervals between attacks. He was convinced that he had organic heart disease, a view which was shared by the medical officer of the ship, but he quickly recovered on being transferred to hospital.

An increased susceptibility to cold occurs in many cases, indicative of disturbance of the vaso-motor apparatus. Men will put on extra clothing which the climatic conditions do not warrant and say they never feel warm. Others complain of flushing of the face and sweating, often accentuated during the night; red patches appear on the trunk and throbbing sensations are felt in the lower extremities. There may be visible abdominal pulsation. The blood tension in these cases is generally diminished.

The special senses are also disordered. Hearing may be hyper-acute, and I have had more than one patient in whom persistent tinnitus was a source of trouble. Susceptibility to light may be great; neuralgia is rapidly brought on by the strain of reading and vision for near objects is generally defective, resulting in premature presbyopia.

Functional disturbances of the alimentary system are very commonly present in neurasthenia. Constipation is almost invariably found, and may be obstinate to a degree. Some patients are troubled

by flatulence and abdominal pains occurring at irregular intervals without relation to time of feeding, while others have typical dyspeptic symptoms. An A.B. whom I treated used to suffer from vague pains in the abdomen, varying in intensity and unaffected by meals. He had a sound appetite and was of good physique, but hands and lips showed decided tremor, and speech was hesitating. The knee-jerks were exaggerated and the pupils normal. This man was very anxious about his condition, but improved rapidly under the influence of suggestion, and recovered. I have met with a few cases in which anorexia existed, but as a rule the appetite is good and the patient seldom misses a meal. Vomiting is occasionally seen, but in none of my cases has it been a pronounced symptom as in shell shock and hysteria.

Psychasthenia.—Let us consider the cases in which such symptoms as ideas of doubt, hesitation, and defective will supervene, and the syndrome is established which is termed psychasthenia. These patients are generally very introspective, and are never free from cares and worries of every conceivable kind. The facial expression is melancholic, and furrows and wrinkles appear, giving the man an aged look. Mental worry is accompanied by great restlessness throughout the day and often by insomnia. A few hours' sleep may be obtained, but the patient wakes with fits and starts throughout the night, or else a couple of hours after retiring; further sleep is an impossibility, and he rises in the morning unrefreshed.

Impairment of memory for recent events and loss of the power of voluntary attention are early symptoms, and not infrequently the case first comes under observation when trouble arises on this account. Orders are forgotten as soon as they are issued, and the true diagnosis may be made on examining the man for his fitness to undergo punishment. The will is defective, judgement is weak, and all sorts of vague doubts and fears may torment the individual. He loses self-confidence early, and may suffer agonies of mind in persuading himself that he has come to a wrong decision in the execution of his duty, and that the safety of the ship is imperilled as a result. He becomes apprehensive and timorous, and develops great irritability of temper, a passionate outburst being provoked by the most trifling cause.

Unnatural fears and panic states are seen at times, and in my experience I have found claustrophobia, the fear of confined spaces, present more frequently than the contrary state agoraphobia in the proportion of four cases to one. Apart from the foregoing, I have never encountered in the Navy any of the common phobias met with on land, but have witnessed in two or three instances a very remarkable state which I can best describe as the "fear of going ashore." This may seem paradoxical, but the condition of mind has a very real existence. It lies in a dread of traversing a space of sea in a small boat, and no matter how calm it may be the argument is put forward that the sea may rise before it is possible to return to the ship. I have known a man to stay on board for six months rather than face a journey of a few minutes' duration in a picket-boat.

Disorder of conduct may necessitate certification, but compara-

tively few neurasthenics become insane and have to be transferred to an asylum. Some may present symptoms almost typical of hypochondriacal melancholia, and delusions and hallucinations of varying nature may be found. Homicide is rare, and attempts at suicide are not common; two instances of the latter in my knowledge have proved successful. Contrary to experience in civil life, an unsuccessful attempt does not tend to frighten a patient into sanity, and may be followed by several determined efforts at taking his life.

Shell Shock.—One of the most grievous faults in modern writings lies in the confusion of neurasthenia with shell shock. The two conditions are essentially different. The term neurasthenia connotes the gradual development of a state of exhaustion of mind and body spread over an appreciable interval of time, sometimes long, sometimes short; ætiological factors are multiple and diverse in nature but combined in effect, and in very many cases there exists predisposing unsoundness of neuropotential. Shell shock arises from exposure for a short or protracted period of time to atmospherical changes caused by gunfire or the explosion of shells and torpedoes, and may occur alike in the neurasthenic, the hysteric, and the possessor of sound health. Neurasthenic symptoms are common and apart from the pre-existence of a true neurosis, if the individual is of neurotic strain and inherits an unsound nervous system, or if a blemish is acquired after birth, the condition is more likely to appear. The structural defect manifests itself in after-treatment, the prognosis being decidedly worse in these cases, while those previously sound often recover quickly and completely.

There is a second factor present in many cases of shell concussion at sea. The explosion of a big shell in a "flat" or other confined space is accompanied by the so-called "flash" which causes superficial burns of parts of the body not protected by clothing. Thus, in several instances, we have to deal with an aggravated condition of shock arising from the combined effect of concussion and more or less extensive burns.

It is necessary before describing shell shock, as it occurs under war-conditions at sea, to consider the psychology of the sailor previous to action. In addition to exposure and physical exhaustion, fear is an all-important element in the production of the neurosis, and is the hidden cause of many of the symptoms. By fear I do not mean cowardice, for the latter state is the triumph of the former over the will. The emotion of fear is requisite for the preservation of the race, and is of fundamental origin. Fears of mines, of torpedoes, of action, are all experienced at times by men afloat, and are suppressed by the will, but the very stimulus which calls for suppression raises the kinetic value of the individual; without fear there can be no bravery, indeed, this emotion forms the foundation of the fighting efficiency of our Navy. In some the struggle between fear and will is great, being attended with correspondingly high consumption of nervous energy, and it is in these cases that shell-shock so often supervenes. Moreover, there can be no doubt that organisms of

complex structure are more subject to mental dissociation under the stress of great emotion. Cowardice is a negative quantity in the mental equipment of the British sailor. He sings on hearing rumour of an action, he sings when going into action, he sings while fighting, and he passes into a better land still singing.

In all cases with which I have come in contact there has been loss of consciousness for a variable period after the explosion. The majority do not regain mental activity until several hours have elapsed, and many exist in a dazed or half-conscious state for days or weeks. Amnesia is always pronounced, and often the patient has no recollection of events prior to the disturbance, and may not even remember his own name; but such profound loss of memory is comparatively rare. An A.B., who had been in the vicinity of a bursting H.E. shell, could recollect nothing previous to a date four months before the action.

Mutism is a common symptom. These men often talk at night during their sleep, and regain their speech through some unexpected incident which catches the controlling " censor " unawares. Respiration is always shallow in these cases, and usually increased in frequency. Stammering is often seen; it is due to instability, and may be greatly aggravated by unsuitable treatment. Affections of speech are extremely persistent, and may long resist attempts at cure, but this is generally accomplished with comparative ease on establishment of normal respiration. They may be associated with deafness, or the latter condition may be present alone. Many are hyperacute of hearing, and I recollect an officer who had to be placed in an isolated hut away from the hospital because he could not tolerate the least sound. Amaurosis is also common, but fortunately recovery of sight takes place in the greater number of cases, frequently after a minor injury or fit. A patient may be blind, deaf, and dumb, and may recover one sense and not another. I have found recovery of sight to take place soonest as a rule, while deafness is often a trying and obstinate symptom. The following two cases are of interest in this respect :—

An officer was blown up owing to his ship striking a mine, and when seen three days later was blind and stammered badly. He was tremulous and emotional, and wept frequently. He had a convulsive seizure early one morning and recovered his sight. The speech defect was cured in a few days' time, and the patient has been fit ever since.

A stoker was first seen two months after his ship had been torpedoed. He was on watch below at the time of the explosion, and was picked up afterwards in an unconscious state. He could not speak, and suffered from ill-defined abdominal pains; respiration was feeble, and tremor was pronounced. In three days after treatment was begun he was able to whisper, and by the fifth his speech was loud but hesitating. He recovered completely by the eighth day, and has since returned to sea.

In nearly all cases of naval shell shock insomnia prevails, and such fitful sleep as may be obtained is marred by terrifying dreams. The horrors which men have gone through, and the terrible sights they

have witnessed, are recapitulated when they are urgently in need of mental rest, and closure of the eyes is merely the prelude to fighting their battles over again. I have known men deliberately to keep themselves awake at night in order to avoid these disturbing dreams. Their diminution is a sign of improvement, and always should arouse hope of recovery in the near future.

Fear is the emotion underlying the neurosis, and therefore we expect to find symptoms that we generally associate with a state of terror; paresis and paralysis, especially of the legs, cold sweats, tremors and facial contortions are all present, and may pass off rapidly or slowly. Excitement at times becomes maniacal in nature.

Vomiting without effort is very frequently a symptom attended with anorexia. An A.B. who had been rendered unconscious by the concussion of a bursting shell was blind in the left eye and mute. The least mental effort, such as endeavouring to attract the attention of the nurse, in addition to worries about home affairs, provoked an attack of vomiting. He had no appetite, but improved steadily when it was explained to him how he was allowing his emotions to gain the upper hand. Tremor may be fine and only visible on stretching out the hands or on movement, or there may be shaking of the whole body. Convulsive seizures of an hysterical nature are often seen, and may be followed by recovery of sight, hearing, or speech, but I have never observed a fit of an epileptic nature. Paralysis may be severe, and I have had cases of hemiplegia and paraplegia. Headaches always occur, usually frontal or occipital, and may last for months; some complain of a feeling of pressure in the skull acting from within outwards, but the "casque neurasthénique" is never seen in uncomplicated shell shock. A slight noise becomes intolerable, and recurrent pains in the head may occur for a long time after the patient is discharged from hospital.

The body weight falls considerably. Cutaneous or deep anæsthesia is present in severe cases, and vertigo is quite common. In addition many patients show typical neurasthenic symptoms, for, as has been pointed out, there may be a neuropathic taint in the individual or family history.

Many and varied are the disorders of mind following shock and concussion, but it must be remembered that the injury may simply hasten the development of hitherto undetected insanity, as in dementia paralytica, dementia præcox, and maniac-depressive psychoses.

As may be expected, exhaustion symptoms are most commonly met with. There may be profound amnesia with visual hallucinations and inattention, insomnia and troubling dreams being present as well.

It is worthy of note that in the few cases I have met with, in which auditory hallucinations were present, the outlook was far less hopeful, and, except in one instance, confusion or stupor followed. There is always decided irritability and lack of self-control shown in copious weeping and unreasonable fits of anger, impaired judgement and depression, and frequently the patient cannot be induced to keep quiet for a few moments at a time, but gets out of bed at night and wanders

round the ward. The prognosis is decidedly good in these cases, and the majority of them quickly recover, but relapse is common if discharge takes place too early. A few cases pass on to a condition of confusional insanity. A senior officer was on the bridge during an engagement; several men were killed on all sides of him by shrapnel, and immediately afterwards a loud explosion occurred and he lost consciousness. On becoming conscious again 36 hours later he was very excited, and with difficulty could be kept in bed. He remembered seeing men killed around him, but had no recollection of details of the action. Insomnia was marked, and the snatches of sleep obtained were disturbed by dreams. The knee-jerks were greatly exaggerated, and there was general body tremor. Active hallucinations of sight developed on the second day, and the restlessness increased. Under treatment he improved rapidly and was well in less than five weeks; he has since maintained sound health.

In two or three cases I have witnessed acute hallucinatory or confusional insanity. An O.S. had been " concussed " by a big shell. He slept very badly, had a very defective memory, had active hallucinations of sight and hearing, and soon developed delusions of suspicion He continually heard voices mocking and jeering at him, and became convinced that he was the object of ill-design on the part of certain people. He was very wary about taking his food, for he suspected poison, and was restless and excited. Attention was weak and speech incoherent. There was loss of control of the bladder and rectum. He made a determined attempt to commit suicide, probably in order to escape from his imaginary pursuers, and did not recover until ten months after the commencement of the malady. In no instance has dementia supervened.

I have encountered one case of anergic stupor in the person of an E.R.A. who had been torpedoed. This man was absolutely mute and imperceptive, and took no interest whatever in his environment. He would sit or stand in one position for hours at a time with eyes staring and mouth partly open. No attempt was made to masticate food or to eliminate waste material, and he remained in this condition of stupor for three months.

In the few cases in which dementia or a maniac-depressive state has ensued the course and prognosis have been in nowise atypical of the disease, the strain of war having accelerated an established process of mental dissolution.

Hysteria.—As we have seen, hysterical symptoms are manifold in shell shock and show themselves as paralysis, vomiting, anorexia, convulsions and so forth, but, nevertheless, they often appear in men who have not suffered from general nervous shock. Hysteria very often follows when a man has been wounded, but one must not forget the frequent presence of a sensitive nervous system and possibly a neuropathic predisposition. If there are undue suggestibility and want of stability in the emotional sphere, the reception of a wound is often sufficient to turn the balance and to inaugurate an attack of hysteria.

Hemi-anæsthesia is common as well as loss of sensation localized to

a limb or part of a limb. Analgesia is very definite, and there is nearly always dissociation of sensation. Hyperæsthesia may occur along the spine, and violent pains in the top of the head may disturb the patient. Frontal or occipital headache is seldom seen.

Paralyses and contractures are commonly met with. An A.B., aged 31, had marked contracture of the tendo calcaneus of the right leg; he had been wounded in the calf by a fragment of shell, but there was no peripheral nerve lesion, and the wound had healed satisfactorily. He was firmly convinced that there was organic trouble. The mental state was one of alarm. Control of the emotions was lacking, and he wept when referring to his affliction. Tremors and facial twitchings were present, and the deep reflexes were increased. I have seen many cases of deformities of feet and hands, clenching of the latter and equinus positions of the former being most common.

All forms of paralysis may be observed but paraplegia is by far the commonest. An O.S. had paraplegia for two months after a wound in his left thigh. There was anæsthesia and analgesia in both legs from the knees downwards, the patient being insensible to the prick of a pin. Fine tremor of the hands, aphonia and ankle-clonus were present; the knee-jerks were normal. The man was able slowly to bring his legs into a position of semi-flexion on the thigh when in a prone position, but was quite unable to stand and bear the weight of his body.

Tremor of the hands is always present, being increased on volitional movement, and may be associated with lingual and labial tremors and facial spasms.

The alimentary system is almost invariably disordered, and one of the most distressing factors is the loss of appetite, sometimes amounting to a feeling of disgust for food. One man had such an antipathy for nourishment that the sight of a tray containing food immediately provoked an attack of vomiting. Wasting was considerable, and death took place in spite of treatment. Vomiting is common, and may be associated with constipation and meteorism, and is at times fæcal in nature.

Apart from dyspeptic symptoms, psychical vomiting may occur. In these cases there is always a state of mental excitement, and the sickness is but the expression of want of emotional control.

Præcordial pain and palpitation may be the source of endless worry to the patient and often sleep is delayed into the small hours. The pulse-tension in these cases is variable and dependent in rate upon the emotional state.

In a good many instances, men have complained of pain and tenderness in the knee joint, always unilateral and never accompanied by local signs of fluid, heat or redness. I have not observed hysterical affections involving other joints. Convulsions occur in several cases, of varying severity. They are usually preceded by auræ, consisting of hallucinations of the special senses or abdominal pains, and differ in no way from the characteristic hysterical fit. One patient passed

into a state of trance after a seizure.

The mental attitude is by no means constant. Some are lethargic and evince no wish to get better; others are excited, tremulous, and hallucinated; all are inattentive. Hallucinations are not very common, and when present, especialy when the sense of hearing is involved, greatly detract from the likelihood of quick recovery. They are for the most part visual, and are always associated with anæsthesia and disturbance of memory. As a rule memory is good, but may be deficient in severe cases, being anterograde in type. Insomnia is not often seen nor do terrifying dream-states render sleep unbearable. Loss of self-control is always present. The patient is quick to anger, and may laugh at one moment and rage at the next. He is extremely amenable to suggestion, and will develop fresh symptoms owing to this trait. Volition is weak, and no concern is exhibited for others. The dominant factor in all cases of hysteria arising from the sea is emotional instability.

Other Exhaustion Cases.—I now wish to record a condition which has grown out of the European War, a condition prevalent since the end of the first year among officers in the Fleet and on patrol duties in northern waters, and which manifests itself in diminution of mental and physical tone. The disease is insidious in onset, and may not be detected, so well concealed are the symptoms. It is infectious to a degree, and will spread gradually, involving members of a mess one after another to the detriment of the mental welfare of the community. When men are situated for a prolonged period far from civilization, alteration in outlook on life is always liable to take place, but when isolation takes the form of confinement in a ship for nine or more months at a time without viewing a human face apart from the too familiar ones on board, and when there be added the customary state of inaction, the ever-defeated longing to meet the enemy in combat, the feeling of wasting precious years of life, worry about home affairs, and the uncertainty of duration of existing conditions, can it be a matter for surprise that an overwrought nervous system should become corrupt in function?

One of the earliest signs of this neurosis is slight but definite change in personality. The bright and entertaining member of the mess imperceptibly grows less amusing, and becomes quiet and reserved and his wine bill shows an appreciable monthly increase. Lessening of self-control is shown in other ways, notably in irritability of temper; headaches occur and the sick-bay is besieged for all sorts of imaginary ills. Tremor of the hands and facial twitchings develop and sleep is deficient in quality and quantity. Mental depression is by no means a constant symptom, but there is nearly always growing dislike of fellow companions, their movements, sayings, and facial expression.

When depression occurs, it is associated with constipation and headaches, and may merge into definite melancholia and render certification necessary. Often the symptoms are masked by a look of cheerfulness, but the strain of concealment may become too severe

in the long run and yielding on the part of another may be sufficient to inhibit proper control in the emotional sphere: one Bolo may corrupt a whole mess. Sometimes this condition is but the stepping stone to neurasthenia or hysteria, but true neurasthenic or hysterical symptoms appear in few cases; it is more akin to the latter than the former condition. It occurs alike on the lower deck and in the ward-room, and when it has become widespread and permeates a vessel from bow to stern she becomes known to the sailor as a "mouldy ship." I am convinced that the amount of venereal disease is influenced considerably by the life of solitude led by so many of our sailors through the greater part of the year, and that a reduction in percentage of cases would occur if it were possible to grant leave at regular and more frequent intervals.

Let us take into consideration various factors concerned in the production of this neurotic state:—

(a) *Age.*—Men are affected at all periods of life, but the incidence is greatest from the twentieth to the thirtieth years, when the adult nervous system is subject to the most severe strain.

(b) *Size of Ship.*—The condition is essentially one found in ships that remain for lengthy intervals at a base remote from civilization, and is more common in small vessels. In a large ship there is always an occasional element of change afforded by the advent of newcomers and departure of old members, but the same half-dozen officers may sit at the same table for month after month in smaller craft and never see a strange face. I have heard of one ship at a foreign station in which the seven occupants of the wardroom never spoke to one another for six months except for purposes of convenience or rebuke.

(c) *Nature of Duties.*—These are apt to be monotonous, and for that reason are liable to be contributory causes. This does not imply loss of interest in the main issue of all forms of duty, but constant and necessary repetition becomes irksome, and if an officer has an hour's work to do out of the customary routine, he may feel that he is being harshly treated and should be an object of commiseration on the part of his messmates.

(d) *Time of Year.*—Onset is more common during the long winter days when cold, fog, and storm prevail and hours of daylight are but few.

(e) *Degree of Naval Activity.*—The neurosis appears when there is absence or a minimum of actual sea-time, and fighting is practically non-existent. We meet with many cases of nerve-exhaustion in men from destroyers and other ships constantly at sea who lie in a perpetual state of preparedness for immediate action, but the condition described is primarily one of inaction.

(f) *Length of Stay in Ship.*—It is a logical conclusion that prolonged residence in one particular ship will aggravate symptoms, if they are present. I have met officers who have spent over three years at sea, who showed clear evidence of the effect upon their nervous mechanism, chiefly in irritability, fine manual tremor, insomnia, and

neuralgic pains in the head.

(g) *Heredity*.—The same statement made in regard to other neuroses applies in these cases. If there is a family history of epilepsy, alcoholism, or insanity, the neuropathic predisposition is liable to declare itself under the strain of an unaccustomed environment.

(h) *Idiosyncrasy*.—Certain people, free from neurotic traits, are excessively intolerant of loneliness and separation from their fellow-men, and these in particular are affected. Of two ships lying at the same base in similar circumstances, one may be the acme of cheerfulness and efficiency while the mental tone of the other is very different.

As the war is the underlying cause, and since we cannot stop the war without fighting, we cannot hope to eradicate the disease, but a great deal can be done to lessen the percentage of men annually discharged from our fleet medically unfit by employing prophylactic measures. I do not think that any men should be based at a spot remote from civilization for a longer period than two years. More frequent leave of shorter duration is urgently needed, and it should take place as regularly as the exigencies of the Service permit.

If an appointment of this nature did not exceed two years in duration, and if ten days' clear leave were granted every four months, the risk of a breakdown would be reduced to a minimum.

Much has been done in the larger ships to alleviate boredom by the introduction of cinema shows, amateur theatricals, concerts, and so forth, but there are hundreds of small ships in the Navy that have no relaxation from one end of the year to the other, and it is more especially on their behalf that I appeal for a time limit to conditions of service, and more opportunities for mixing with fellow citizens. Active treatment should consist of complete rest for at least a month, mental relaxation and good feeding. The patient should not be sent back to the scene of his troubles on the expiration of his sick leave, but should be afforded an entire change of surroundings and action.

DIAGNOSIS.

The diagnosis of these disorders of the nervous mechanism is not a matter of great difficulty as a rule, but the possibility of malingering has always to be borne in mind when there is no apparent direct cause to explain symptoms. It happens occasionally that a new medical officer may be hoaxed by an astute actor whose object lies in being sent to the beach, and unfortunately the contrary error is sometimes made, and a genuine case of nervous disease is treated and punished as a malingerer. The question of a prolonged bout of drinking must also be considered in the case of men recently returned from leave, and frequently symptoms disappear like magic on the stoppage of shore leave and rum ration. Again, I have seen two cases in which general paralysis was mistaken for neurasthenia; but the strain exerted upon the nervous system merely proved the exciting factor in the onset of established disease. The following table embodies

the chief points in the differentiation of these neuroses :—

——	Neurasthenia.	Hysteria.	Other Exhaustion Cases.
Anæsthesia	Absent	Present	Absent.
Hyperæsthesia	Present	Sometimes present.	Absent.
Headache	Always present	Seldom present	Often present.
Tremor	Distinct	Very distinct	Fine, and decreasing on effort.
Pupils	Dilated	Sometimes dilated.	Normal.
Knee-jerks	Exaggerated	Exaggerated	Normal.
Insomnia	Very pronounced	Seldom present	Generally delay in getting to sleep.
Dream-states	Terrifying	Absent	Present, but not of alarming nature.
Retraction of V.F.	Absent	Present	Absent.
Contractures	Absent	Present	Absent.
Convulsions	Rare, usually epileptoid.	Common, "purposive."	Absent.
Memory	Often very deficient.	Slight defect	Gradually impaired.

TREATMENT.

The treatment of these exhaustion states arising from the sea is a serious and important problem. In all cases prolonged rest is absolutely essential, rest for both mind and body. The patient should be placed apart from others, if possible, and should be fed regularly and at definite hours; visitors should be very few, and reading should not be permitted in the early days. When improvement has taken place to such an extent that the patient is allowed to be up and about, strenuous exercise must be discouraged, and as soon as strength permits, he should be transferred to a convalescent home. It is quite useless to send a man back to sea until he has fully recovered, otherwise recurrence is sure to take place; health can only be regained by long and complete rest.

I cannot lay too much emphasis of the value of suggestion in treatment of these neuroses. Men who have been subjected to all forms of medical treatment, and have given up hope of recovery respond to perseverance and patience in the attempt to gain their confidence, and under the influence of suggestion the blind see, the dumb speak, and the paralysed walk. A stoker who had been mute for six months regained his speech in a few minutes of being lightly anæsthetized and told that he would utter a certain phrase when he woke up.

Cases of mutism and stammering frequently show decided improve-

ment in the establishment of normal respiration. Breathing is always shallow, although the patient is generally unaware of the fact, and when this has been pointed out by some simple device, such as getting him to blow bubbles in a basin of soapy water after taking a deep inspiration, and he has been told that as soon as he begins to expand his chest and take deep breaths he will be able to speak normally, the man often makes a rapid recovery. These men are prevented from seeing or hearing or speaking by a dominant idea that they are unable to do so. It is the duty of the medical officer to explain to the patient how his symptoms are all based upon a false belief, and to bring to his notice apparently trivial and unimportant signs that may occur from day to day that disprove the existence of true loss of function. The dumb speak in their sleep and the paralysed walk, and often a convulsive seizure or an unsuspected mental or physical stimulus destroys the constant inhibition, and the patient regains his former powers. Suggestion and re-education are very useful with hysterical contractures, and spasms, particularly in a recent case in which there has not been time for adhesions to form and limit movement as the result of unsuitable treatment. Massage and electricity are often the cause of a great deal of harm, and massage is especially dangerous in neurasthenia. The patient has been rubbed, drugged, and electrified until he is sure that he is suffering from organic trouble for which there is no cure. These men all do well if it is strongly suggested that there is nothing wrong with them except the dominant idea which prevents them walking, using an arm, or standing upright, as the case may be. The physician must have full confidence in himself else he cannot hope to gain that of his patient, and above all, no hint of return to sea must be afforded; a little logic and reasoning in dealing with these men will accomplish results which appear to the layman miraculous.

Insomnia and dream-states often are subdued by the continuous warm bath. The patient should be immersed twice a day for a period of one hour at least in a bath at a temperature of 98° F., the first during the forenoon and the second immediately before retiring for the night—not later than 9 p.m. This, followed by a glass of hot milk, may be sufficient to induce sleep, but hypnotics may be necessary. Paraldehyde ℥ii in hot milk with a little peppermint is often effective, and I have obtained excellent results in many cases with amylene hydrate ℥i.ss, although, after an exhaustive trial, I have not found it to show any distinct advantage over paraldehyde. Sulphonal and trional are not efficient in general, but the former drug is of great use in certain individuals. Choralamide, dial, gr. iii., and chloral, gr. xx., may be employed, while the bromides, preferably in the triple form (equal amounts of the bromides of K, Na, and NH_4), or potassium bromide, gr. xv., combined with chloral hydrate, gr. xx., will give the desired effect. In very restless and excitable cases, an hypodermic injection of hyoscin hydrobromide, gr. $\frac{1}{100}$, is required.

Headache may be a troublesome symptom, and may be alleviated by cold applied to the head, aspirin, gr. xv., or phenacetin, gr. x,

combined with 2 or 3 gr. of the citrate of caffeine. Great care should be employed, however, in administering these drugs and routine use of any should not be adopted; antipyrin should never be given. In early cases, when there is headache, dizziness, and tremor, the following may be advisable twice or three times a day :—

Quin. Sulph. - - - - - -	gr. ii.
Ferri. Sulph. - - - - - -	gr. iii.
Ac. Hydrocyan. Dil. - - - -	℥ iii.
Tr. Nuc. Vom. - - - -	℥ x.
Aq. Chlorof. - - - - - ad	ʒ ss.

Regular and easy action of the bowels should be maintained, and a morning dose of salts with weekly administration of a laxative often suffice, but constipation may be troublesome, and warrant more vigorous measures.

When the acute stages have passed off a tonic may be of help to the patient. Iron, arsenic, and strychnine may be given, and the following is a good prescription :—

Ferri. et. Ammon. Cit. - - - -	gr. viii.
Liq. Sod. Arseniatis - - - -	℥ viii
Tr. Nuc. Vom. - - - - -	℥ x.
Aq. Chlorof. - - - - - ad	ʒ ss.

It must not be forgotten, however, that a minimum of reliance should be placed on the efficacy of drugs in the treatment of sea neuroses, and the general principles observed should be those of common-sense, good feeding, abundance of fresh air, and hydrotherapy, together with the personal equation of the physician. Convalescence should take place in a suitable home where there is quiet and freedom from noise and worry, and great care should always be exercised in sending a man back to his former duties when apparently cured, for relapse is common where rest has not been sufficiently prolonged, entailing further harm to the individual and loss to the State.

DUCTLESS GLAND THERAPY.

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To the enthusiastic general practitioner, the study of the ductless glands is not merely of absorbing interest, but is essentially one of paramount importance.

Notwithstanding all the work that has already been accomplished in this connection, there still remains unexplored a wide tract of endocrine territory, a portion of which at least may, by dint of careful clinical observation and experimentation on his part, be recovered, tilled, sown, and made to bring forth fruit. The busy general practitioner has not time to delve deeply into the literature of this subject, which the laboratory workers of the world have of recent years poured forth in such abundance. Nor can he, from the very nature of his daily work, gather together the only patients of a particular label—after the manner of the specialist—to the exclusion of others which may be to him of less interest. Yet herein lies the peculiar fascination for him of opotherapy. This clinical objective at once enlarges his curative armamentarium, augments his powers of observation, and brings within the purview of his particular interest patients, who hitherto seemed to belong to another category.

Signs and symptoms, which previously were perhaps passed unnoticed or, if noted, seemed to be misfits in the jig-saw of any particular syndrome, and were, therefore, in subsequent cases possibly discarded, bring to him in the light of this comparatively new study an explanation of some of his past failures, a beam of light for future treatment, and a much enhanced pleasure in his work.

At the same time it is perfectly true and obvious that with the comparative paucity of knowledge regarding the part which the ductless glands play in the human economy, a very considerable amount of opotherapy must, of necessity, be more or less empirical. It is by no means, however, incumbent upon the general practitioner to await complacently the findings of the laboratory before exhibiting an extract or combination of extracts where such may seem to be indicated. On the contrary, there must be independent and combined clinical and laboratory experimentation, and a due interchange of views between the physiologist, the pathologist, and the practising physician.

It is, moreover, well to remind ourselves of the fact that laboratory research upon the endocrine glands, which has assumed such large proportions, received its initial impulse from the results of clinical observation and experimentation.

The following record of some of the more instructive cases exemplifying thyroid insufficiency, which have occurred in the writer's

practice, and the brief observations thereon may, it is hoped, not be without interest to those who practise opotherapy and of some assistance to others who have not yet embarked upon this fascinating study.

In a future paper, it is the writer's intention to give some of his experiences in connection with the clinical application of other members of the endocrine system.

In observing, from the clinical point of view, the action of the thyroid gland, it is important to remember that neither its complete chemistry nor its total functions have yet been satisfactorily elucidated. Recently,[1] however, certain American investigators have produced synthetically a crystalline substance under the name of "thyroxin," the administration of which, it is stated, not only relieves all the symptoms of myxœdema, but if given in excessive doses produces those signs which are associated with hyper-thyroidism.

While it is evident that this aspect of the subject demands further investigation and proof, it is, nevertheless, axiomatic to state that a normally functioning thyroid is an essential for the complete physical and mental development of the infant and for the maintenance of health of the adult. That this gland also is intimately connected with the metabolism of the iodine and calcium in the body seems now to be beyond dispute. According to Jolin[2] the average amount of iodine in the normal human thyroid is 8·5 m.g., and this increases to 15·6 m.g. under iodine medication. It has further been established[3] that, although the eviscerated gland is capable of absorbing iodine, its living cellular tissue is essential for the due elaboration of its iodine-containing hormone.

The claim that has been made, that the normal thyroid in virtue of its iodine-content supplies an antiseptic to the blood stream, is based mainly upon the laboratory findings of a greatly reduced amount of this substance in the gland after acute illness. One of its important properties is its ability to store up iodine; but it is open to doubt whether it can retain for transmission *viâ* the blood-stream to the tissues of the body at any given period sufficient iodine, in the form of a "vital antiseptic," to restore the balance from a septic to an aseptic state. There is no doubt, however, that in all toxæmias the thyroid plays a very active and essential part, and that after severe illness in many cases it often ceases to function adequately. Clinically, many instances of this may be observed in children who, previous to the onset of some acute infection, have been normal in every respect, but who subsequently exhibit in varying degrees signs of failure of development and other stigmata of sub-thyroidism. Likewise adults under similar conditions show evidences which point conclusively to a breaking-down of the thyroid's efficiency, which may be temporary or the incipient stage of chronic benign myxœdema. The truth of this can soon be verified by the exhibition of thyroid extract which, if used with care and perseverance in such cases, not only aids defervescence but greatly hastens convalescence. In the writer's opinion, the precise part which the thyroid plays in the

defence system of the body must be viewed more from the aspect of (1) its specific ability to store up and elaborate iodine, and (2) its intimate hormonic and chalonic relationship with other members of the endocrine glands.

The discovery and isolation of organically combined iodine in the thyroid by Baumann in 1895 not only marked an important stage in the elucidation of its chemistry, but supplied the key to a better understanding of the action of the iodides as well as an index of their uses and limitations. As is well known, these salts have for a lengthy period held sovereign sway over a large pathological domain, and have, moreover, achieved a success which many another group of drugs might envy.

It is now generally conceded that iodine compounds exert a profoundly stimulating influence upon the thyroid gland, and, further, that it is in virtue of a more or less intact thyroid that they are able to produce their beneficent influence. Iodides fail entirely to relieve the symptoms in congenital, acquired, or operative myxœdema. They have failed, as is well known, sometimes to quell the ravages of the syphilitic virus, and an appeal in these cases has been made to mercury. The explanation of these phenomena is not far to seek. In the first group, the factory for synthetizing iodine has either never existed or has become defunct, while in the second group its output has either entirely ceased or deteriorated in quality.

The thyroid's parlous state in the latter would seem to be due to the toxæmia produced by the constitutional stage, which has completely paralysed its functioning power for the time being. That this is so is borne out by the fact that certain cases of syphilis, in which iodides failed to give relief at one period, can later on resume the use of the drug with greatly resulting benefit.

In connection with this dependence upon the thyroid's reactive power to the iodine stimulant, it is interesting to recall the great variability of time which this disease takes in manifesting in different cases its tertiary signs. Why should gummata take from one to forty years or more to manifest themselves in cases of approximately equivalent virulence and equal treatment with mercury and potassium iodide? An answer to this may be found in the degree of recovery of the thyroid from the toxic effects of the secondary stage. The greater and speedier this recovery the more effectively will it react to the iodides and metabolize the iodine brought to it. This aspect of the matter is distinctly interesting in view of the experience of Rendle Short,[4] who states that he has "found thyroid extract quite as effective as iodide of potassium in healing tertiary syphilis." This was certainly not unexpected upon theoretical grounds, and it will probably be found that where iodides fail thyroid extract may prove successful.

It has been suggested above that to the virulent poisoning of secondary syphilis is due the succeeding sub-thyroidic state.

Aneurysm and early atheroma so frequently follow in its wake

that a history of infection by the treponema pallidum is correctly assumed, in spite of denial, in the great majority of cases. Arterio-sclerosis is one of the most outstanding and striking changes in congenital myxœdema that on analogy it would appear to be not unreasonable to attribute post-syphilitic vascular changes definitely to post-syphilitic sub- or dis-thyroidism. Not all toxæmias, however, exert the same paralysing influence upon the thyroid's efficiency, for it would seem that its responsiveness to the various poisons of disease depends upon their type and intensity. For example, I have frequently noticed in persons suffering from incipient tuberculosis, or evidencing the pre-tuberculous state, that the thyroid gland is slightly enlarged. Moreover, these cases exhibit signs and symptoms which are indicative of a mild degree of hyper-thyroidism.

Even in the absence of pyrexia, and in those individuals in whom no definite physical signs are detected, but who subsequently manifest the disease, there are, in association with slight goitre, fine tremors, heart-hurry, and acceleration of respiration. Moreover, the well-nourished condition of the skin and the generous growth of the hirsute appendages are such common accompaniments that even the laity associate them with " consumption."

Here is an instance of the effects of slowly increasing doses of a particular type of toxin, which is just sufficient to accelerate the thyroid's activity instead of overwhelming it. In more advanced cases of steadily progressive sub-acute phthisis, the hand of the hyper-active thyroid may still be detected. The general sympathetico-tonic state, the quickened intelligence, the nervous irritability, and the tendency to laxity of the bowels, are symptoms which find some parallelism with Graves's disease, and are not so easily explained on bacteriological grounds alone.

Whilst claiming no prescient powers, the writer makes bold to suggest that many conditions, which are at present grouped as definite pathological entities, will in the not far distant future be necessarily considered in terms of endocrinological imbalance.

The following somewhat remarkable case illustrates well the effect of potassium iodide upon the thyroid gland :—

Case 1.—F. Y., male, æt. 34, suffering from early disseminated sclerosis, otherwise in good health, pulse-rate and heart normal, no obvious enlargement of thyroid. On the occasion in question he complained of lumbago and I ordered him 10 gr. doses of potassium iodide t.i.d.

After the fourth dose he sent for me and complained of enlargement of his throat, of tracheal pressure and a sensation of strangulation. Examination revealed an enormously enlarged thyroid, the neck circumference measuring 18 inches. There was considerable tachycardia and slight dyspnœa. I knocked off the iodide, sent him to bed, administered a purge, and put him on milk diet. Within a few days the thyroid had decreased considerably in size, and at the end of a week it was normal. Likewise all the other symptoms had disappeared. To make sure that the iodide was the direct cause of these symptoms I ordered it to be taken in much smaller doses three times a day. The same result ensued, only not to such a considerable degree. Withdrawal again soon restored the patient to the *status quo*

ante. Incidentally, it may be of interest to point out that during the second administration both testicles began to enlarge until they reached the size of a hen's egg. This was accompanied by considerable testicular pain. There was no sign or history of any urethral infection. This condition cleared up very rapidly upon the withdrawal of the iodide. A curious feature is that there were no signs throughout of salivation—no obvious affection of the parotid or sub-maxillary glands. A further interesting point in connection with this case is that this patient's only child was cretinoid, and made good progress on thyroid feeding.

The clinical picture here corresponds very closely with that seen after the administration of excessive doses of thyroid extract or in cases of acute iodoform poisoning. But so far as I am aware a similar case, giving such a vivid ocular demonstration of the effects of iodine compounds upon the thyroid gland, has not been recorded.

In considering this case the following questions naturally arise :—

(1) Did the fact that the patient was suffering from disseminated sclerosis in any way sensitize his thyroid and render it particularly susceptible to iodine medication?

(2) Have other sufferers from this disease shown similar idiosyncratic tendencies?

(3) What was the primary cause of the testicular enlargement? It was benign in nature and not inflammatory. Was it due to direct stimulation by iodide, or to the influence of the hyper-active thyroid or to an hyper-adrenia?

(4) Have cases of testicular or ovarian enlargement been noted in sufferers from Graves's disease?

HYPOTHYROIDISM.

This condition in its sub-myxœdemic form is very frequently met with in general practice, and, like syphilis, is no respecter of age.

In the early stages of slight thyroid insufficiency, objective signs may be very difficult or almost impossible to discover, and reliance for a diagnosis must be placed upon the recent history and the age of the patient, a wealth of subjectivities, and in the last resort in certain cases the empirical administration of thyroid extract. The condition in infants and young children, in particular, may present itself in such atypical forms that it may be necessary to depend for a diagnosis upon perhaps only one definite symptom, in association with a few rather indeterminate signs which, if taken singly, would convey small indication of the underlying cause, but which, however, can certainly and safely be verified by the cautious exhibition of thyroid extract.

Certain cases of nocturnal enuresis, as pointed out by Leonard Williams,[5] undoubtedly respond to thyroid medication, and in many of these little patients may be noted the beginning or complete development of adenoids. One or other or both of them may be the only definite indication of the primary cause, while the less obvious signs may be enumerated as follows :—(1) slight want of mental alertness; (2) sluggish bodily movement; (3) slightly sleepy appearance of the eyes; (4) sluggish bowels and fœtid stools; and

(5) a tendency to develop flat-foot.

With due attention to diet, general hygiene, and the breaking up of vicious circles, these children do remarkably well on minimum doses of thyroid extract.

With reference to the insufficiency of thyroid activity and the development of adenoids, it is interesting to recall the severe indictments which the soother has justly earned as a cause of the latter condition. In my student days, I was taught that the constant sucking of a rubber teat had the effect of so altering the shape of the malleable hard palate that the naso-pharyngeal space became distorted, and, as a kind of fitting nemesis, Nature reacted by over-developing Luschka's tonsil. This explanation never appealed to me, and it was only when I read Arbuthnot Lane's theory to the effect that intestinal stasis, and the general toxic state resulting therefrom, caused hypo-thyroidism, did I discover what seemed to me a satisfactory answer to the riddle.

The fervent teat-sucker is notorious for putrid stools, and he also seems to yield the majority of cases of enlarged tonsils and adenoids. The wit of man could hardly devise a more refined or more subtle means of introducing pathogenic germ-life into the infant bowel than this lazy and criminal method of pacification. The primary result is bowel derangement and a general toxic state, and, in consequence, a great over-working of the thyroid, which is already fully occupied with its allotted task of manufacturing and supplying to the infant economy its meed towards general development and metabolism. The sequel is thyroid insufficiency of varying degree and permanence, a consequential upset in the general hormonic balance, and the establishment of a vicious circle. It is astonishing to note how, in so many cases in which this hormonic balance has been seriously upset by culpable negligence, or through some congenital defect, or by means of some serious illness, Nature, unaided, re-asserts herself and eventually re-establishes a normal equilibrium. Yet it is impossible to estimate how great a part preventible causes, both pre-natal and post-natal, play in the incomplete mental, moral, or physical development of any individual. But that such causes exist are beyond dispute.

It is, therefore, incumbent upon every member of the profession to point out to parents, when the opportunity arises, the many pitfalls and gins which, through their ignorance or laziness or both, may beset their children's developmental path from its intra-uterine life onwards.

Case 2.—The following case is an example of sub-thyroidism as a consequence of acute illness. M. F., female, aged 17 years, good family history, first dentition not delayed, walked at two years—seven years of age, heat-stroke in New York from which she nearly died. Made good recovery. First menstruation 12 years of age. Shortly after she contracted an acute illness. which lasted some nine months and was associated with repeated convulsions. From the age of 13, when some enlargement of the thyroid and slight prominence of eyes were noticed up to the age of her first visit to me, her physical and mental development were much

retarded. Adenoids and enlarged tonsils made their appearance at the age of 14½ and were duly removed. Her mother's main concern was that menstruation had not been re-established, and that her daughter failed to show the usual modest decorum expected of a girl of her age. Examination revealed a badly-proportioned, rather short, adipose individual, with decided lumbar lordosis, scant pubic and axillary hair, an even, smooth enlargement of the thyroid, and flat feet. The eyes were prominent and large; heart, lungs, and kidneys normal. Weight 10 st. 8½ lbs., height 5 ft., neck measurement 13½ ins. *Treatment.*—Thyroid extract, and for a short period ovarian and mammary extracts. In three months, normal menstruation had been re-established, and secondary sexual characteristics were developing. In six months her weight had fallen to 9 st. 3 lbs., height had increased by one inch, the thyroid was apparently normal in size, neck measurement 12⅜ ins., and the mental improvement was pronounced. Subsequent progress was very satisfactory, and at the present moment this patient is a thoroughly useful member of society, and works hard and intelligently every day of the week at a Red Cross hospital.

The principal points of interest in this case are: (1) The normal development up to the defervescence of the acute illness; (2) the subsequent thyroid enlargement and slight exophthalmos (an indication of the thyroid's effort to redeem the balance) followed by (3) signs of inefficient thyroid activity resulting in the production of the following stigmata of sub-thyroidism: (*a*) retardation of general development; (*b*) appearance of enlarged tonsils and adenoids (*c*) relaxation of spinal and plantar ligamentous supports; (*d*) increase of weight out of all proportion to height; (4) The definite and rapid improvement in every respect after opotherapeutic treatment.

This patient has taken no thyroid extract for over 12 months; and, although she still exhibits a certain degree of lumbar lordosis and finds it necessary to wear plantar supports in her boots, she is enjoying excellent health. Her thyroid has obviously recovered its normal vigour.

Case 3.—In November 1915 I saw J. H., male, æt. 6½ years, in the midst of an attack of acute spasmodic asthma. *Family history.*—"Neurotic" on paternal side. Paternal grandfather suffered from asthma. Parents healthy. *Personal history.*—As an infant, used a soother and made poor headway up to 18 months. Subsequently improved. First attack of asthma 2½ years of age. Intermittent attacks ever since. From 5½ up to the time I first saw him asthma increased in severity and frequency, and the boy ceased to grow or gain weight. Suffered from indigestion and constipation. Weight, 3 st. 3½ lbs.; height, 4 ft. ½ inch. Large crop of adenoids. Hypertrophic turbinals both nostrils. Right side entirely blocked. *Chest*—moderate, pigeon breast. Heart and kidneys sound. Abdomen protuberant. Body generally thin. *Treatment.*—Adenoids removed. Turbinals cauterized. Great attention paid to diet and digestive organs. Temporary improvement in asthma.

September, 1916.—Asthma very bad. Bi-lateral turbinectomy. Slight temporary improvement.

September, 1917.—Very bad asthma. Digestion and bowels greatly improved. Weight, 3 st. 5½ lbs. Prescribed thyroid extract gr. one-sixth per diem.

December, 1917.—Weight, 3 st. 8 lbs. Height, 4 ft. 1¼ ins. No asthma

for two months. Now taking ½ gr. thyroid extract per diem.

January, 1918.—Measles, followed immediately by whooping cough. No asthma. Generally very well. Weight, 3 st. 10½ lbs. Height, 4 ft. 1⅞ ins. From May to August, 1918 parents omitted to give thyroid.

August 5, 1918.—First attack of asthma since *November*, 1917. Weight, 3 st. 6¾ lbs. The boy has been taking thyroid for several weeks, and is already much better.

This child showed no very outstanding signs of sub-thyroidism when I first saw him, but from the history of his case there can be little doubt that he was suffering from thyroid insufficiency. His weight and height at 6½ years of age were well up to the average; but the rather sudden cessation of development at 5½, the presence of adenoids and hypertrophied turbinals, coupled with the impression conveyed by his general appearance, ought to have sufficed at the outset to prevent any error in the diagnosis of the underlying cause.

To attempt to generalize upon the results obtained in one case would be absurd, but the consideration of possible reasons for the remarkable disappearance of the asthmatic attacks under thyroid medication opens up a legitimate field for speculation, which is both interesting and profitable.

The increase in weight and height and general fitness calls for no comment, but it is pertinent to question why asthma should continue after all possible sources of peripheral irritation had been removed, and cease entirely shortly after and during the administration of thyroid extract. In considering this, let it be remembered that, previous to thyroid treatment, the boy suffered a minimum of two attacks weekly and very often experienced them daily, and, further, that he had no asthma during measles and whooping cough.

Spasmodic asthma apparently makes its initial appearance more frequently during the first decade of life and in women at the menopause. To one or other of the numerous acute maladies to which young children are so prone can often be traced the genesis of the trouble.

Further, in considering the question of neuroses, under which heading spasmodic asthma is usually classified, it is necessary to remember that hereditary predisposition is an important factor, and that such conditions as idiopathic epilepsy, hysteria, insanity, and asthma would appear to be interchangeable in families and the transmitted evidences of a neurotic family history.

Without entering into the still unsettled problem of the ætiology of Graves's disease, it is known that in this disorder a hyper-active thyroid is associated with a hyper-stimulated sympathetic nervous system. The pressor nerves to the heart from the three cervical ganglia and the dilator fibres, which supply the bronchial musculature, are, for the most part, in this disease very imperfectly antagonized by the corresponding branches from the vagus. Broadly speaking, the be-gravesed[6] person becomes the pathological prototype of the normal sympathetico-tonic individual, who is particularly susceptible to stimulation by adrenalin and other members of the chromophile group. Precisely the opposite state of affairs obtains in the myxœdemic, who becomes

the pathological prototype of the normal vago-tonic individual with his ready response to cholin. Excepting, in fact, those cases of undoubted sub-myxœdema where heart-hurry is present—which, as pointed out by Leonard Williams,[7] is probably due to mucoid infiltration of the myocardium and is not of nervous origin—the unopposed influence of the para-sympathetic system looms large in the clinical picture. Further, in the sub-myxœdemic, the normal excitor of supra-renal activity is greatly reduced, and thus, in its turn, the sympathetic is deprived of its natural stimulant. Peripheral stimulation of the vagus, as shown by Brodie and Dixon, produces contraction of the bronchial musculature and a constriction in the lumen of the bronchioles, which leads to a great diminution in the quantity of air inhaled and an over-distension of the lung—a state of affairs, in short, which apparently occurs in true spasmodic asthma.

If the truth of the above statements is accepted, it becomes possible, by a process of induction, to explain the beneficent actions of thyroid extract in Case 3.

Inefficient thyroid activity disturbs the normal balance which should exist between the sympathetic and autonomic systems. The latter is not sufficiently opposed, and is, in consequence, very responsive to stimulation of its peripheral twigs. Hereditary predisposition to nervous unbalance obtains, and thus even slight stimulation of the vagal terminals in the gastric mucosa—one which, under ordinary conditions, would produce no obvious effect, except perhaps slight dyspnœa—is sufficient to produce reflexly powerful contraction of the muscles of the bronchioles and a resulting attack of asthma.

The picture would not be complete without some reference to the value of adrenalin administered during an attack of acute spasmodic asthma. As is well known, an hypodermic, or intra-muscular, injection of from 5–20 minims of adrenalin hydrochloride (1–1,000) will, within the short space of five minutes, restore to the anxious sufferer his longed-for liberty to breathe. The writer has never appealed to this remedy in vain, but success depends upon the freshness of the solution. If exposed to air, or if kept for a long time, this preparation turns a pale pink colour and becomes inert. The synthetic product, under the name of " Epinine," is practically identical, chemically, with adrenalin, and, in the writer's experience, is equally efficacious. It has the added advantage of being stable, and can, therefore, always be appealed to with confidence.

The action of adrenalin in alleviating the acute spasm of asthma can well be explained, if the stimulating influence of the supra-renal upon the sympathetic is remembered. It is quite conceivable that this substance, after injection, directly excites the cervical ganglia and thus temporarily antagonizes the hitherto uncontrolled vagus.

The female sex provides the clinician with the majority of cases for observing the varying degrees of thyroid inefficiency. At puberty, at each menstrual flow, during pregnancy and lactation, the gland enlarges, which is evidence of the body's demand for further supplies. These constantly alternating periods of augmented functioning and

comparative quiescence render the thyroids of women peculiarly unstable.

The following cases exemplify the protean manifestation of sub-thyroidism.

Case 4.—Mrs. M., æt. 52, complained of dryness and irritation of the skin of her face and feet, the frequent occurrence of nettle-rash and fulness of the lower eyelids. These symptoms were first noticed six months previously, and had become progressively worse. Menopause at 50. "Rheumatism" in the back of the neck and between shoulders. Hair very dry and falling rapidly for past three months. Digestion bad. Bowels increasingly constipated. Patches of urticaria on cheeks, chest and limbs. Heart "flabby." Pulse 94. Urine normal. Weight, 10 st. 3 lbs. *Treatment.*—Thyroid extract gr. one-sixth per diem. Increased gradually to five-sixths grs. per diem. In two-and-a-half months the skin was less dry, and all urticaria and irritation had disappeared, as well as the "rheumatism." The hair had ceased falling, and there remained no sub-orbital fulness. Weight 9 st. 12 lbs. Pulse 74. Twelve months later is in excellent health.

This is an example of sub-thyroidism associated with the climateric.

Case 5.—Miss D., æt. 43, complained of enlargement of neck, which was first noticed two-and-a-half years previously. Recently enlarged rather rapidly. Digestion very bad. Menstruation regular but recently accompanied by excessive loss and pain. Thyroid enlarged and hard, particularly left side. Neck measurement 14½. Pulse 80, regular, no tachycardia. Feels the cold increasingly. Hair turning rapidly grey. *Treatment.*—Thyroid extract. In a month was taking 3 grs. alternate nights. At the end of two months neck measured 13¼ ins. and goitre much softer. General health improved. Four months later neck measurement 13 ins., feeling very well. Twelve months after beginning treatment, expressed herself as "feeling better than I have done for years." The previous four menstrual periods were normal in amount and accompanied by very little pain. Two years later goitre hardly obvious, general health good. Has taken no thyroid for over two years.

This case exemplifies an attempt upon the thyroid's part to manufacture an extra supply of secretion in answer to the bodily demands. On the administration of thyroid extract, it was enabled to relax its efforts and thus shrink to more normal proportions. The fact that no further opotherapeutic assistance has been necessary indicates the gland's complete restoration to health.

Case 6.—Mrs. H., æt. 70, complained of great weakness, tightness across and distension of upper part of the abdomen, frequent attacks of palpitation and vomiting, extremities always cold. Digestion very bad. Marked constipation. Hair falling out rapidly. Easy dyspnœa. Baldness of frontal and occipital regions. Marked eye-brow sign. Skin dry and harsh. Extremities very cold. Masses of fat, lower abdomen. Subcutaneous integument from level of xyphisternum to umbilicus tender, boggy, and thickened, which stretched the overlying skin and produced the appearance suggestive of inflation. A similar condition was observed in the region immediately above both ankles. Heart, no murmurs, myocardium enfeebled. Systolic B.P. 170. Urine contained trace of albumen. Examination of fæces and stomach contents negatived carcinoma. *Treatment.*—Bed. Rigid dietary and stomachics at first. Later, one-fifth gr.

thyroid extract t.i.d. and Trypsogen tablets with food. One month after beginning of treatment much better in every way, taking ordinary diet. One month later decided decrease in thickening subcutaneous abdominal integument and in the region of the ankles. Pulse 80, B.P. 157, extremities warmer. This patient continued taking thyroid extract in the form of hormotone sine pituitrin and made a most satisfactory recovery.

It will be observed that thyroid extract was not resorted to at the beginning of treatment. With elderly sub-thyroidics possessing an enfeebled myocardium, the greatest circumspection must be shown in its employment. In one such case, some years ago, the writer recollects prescribing thyroid extract in doses which, in accordance with the 1898 pharmacopœia's directions, would have been considered almost ineffectual. Delirium cordis of a most alarming nature soon supervened, which gave both patient and doctor several very anxious days and nights. The final result was, happily, most satisfactory, and the lesson learned has not been forgotten. Attention may here be called to the fact that albuminuria is not necessarily a contra-indication to the use of thyroid extract. If this symptom is associated with clinical and laboratory evidences of definite kidney disease, the remedy should not be employed. Albumen is found in the urine of many cases of sub-myxœdema unaccompanied by the presence of tube casts or renal cells, and of them a goodly number present an albumen-free urine after restoration to normal health through the agency of thyroid extract.

Case 7.—Mrs. W., æt. 50, complained principally of " great coldness in abdomen and round the lower part of the back," and of cold extremities and increasing weight. Bowels constipated. Menstruation regular and normal up to six months previously, now excessive and too frequent. Speech slow and deliberate. Scalp very dry. Fulness under eyes. Thickening subcutaneous abdominal integument. Pulse 62, regular. Heart and urine normal. Weight, 13 st. 12 lbs. *Treatment.*—Thyroid extract. One month later taking 4½ grs. per day. At end of second month appearance and general condition much improved, not so cold. Weight, 13 st. 5 lbs. Pulse 78, continued subsequently on 3 grs. extract p.d. At end of fifth month very well. Weight, 12 st. 10 lbs. Menstruated past three months regularly and normally. Bowels acting without medicine. Weight, 12 st. 5½ lbs. At present moment is taking 1½ grs. p.d. This keeps her in perfect health.

During the administration of thyroid extract, patients frequently complain of pains of a rheumatic nature in various parts of the body. The primary " rheumatism " for which the sub-myxœdemic often seeks relief, and which, in my cases, have almost invariably been referred to the inter-scapular region, is often initially aggravated. In fact, on more than one occasion, this temporary exacerbation of the complaint, coupled with neuralgic pains in the legs and arms, has brought from the patient an emphatic remonstrance against the form of treatment employed. With perseverance, however, these symptoms disappear, and it is rarely necessary to prescribe anodynes. Only in one instance (Case 7), when the pain was sufficiently severe to prevent sleep, have I found it necessary to adopt this course. Having men-

tioned the subject of "rheumatism"—by which term I include alone those chronic pains which the laity invariably class under this heading, and which are usually localized in muscular and fibrous tissues—it is not out of place to call attention here to the fact that a very large proportion of sufferers from this complaint—at least, this is my experience—have exhibited minor degrees of thyroid inefficiency. This being so, it is obviously irrational to prescribe aspirin or some member of the salicylate group to a person already possessing a sub-normal temperature. Besides, the very exhibition of such a medicament only serves to emphasize the confusion which the use of the word "rheumatism," employed in the above sense, has created with the definite entity rheumatic fever. It is true that aspirin temporarily alleviates a symptom, but it still further reduces temperature, and fails utterly in the end permanently to cure the patient, because a symptom alone and not the cause of the trouble has been treated. In this type of case, I find that small doses of thyroid extract alone, or combined in a mixture in the form of elixir colloid with sodium iodide, work like a charm.

In conclusion, I would emphasize the importance of endeavouring to discover in every case the cause of the thyroid's failure. The exhibition of thyroid extract without the removal of the primary cause will undoubtedly benefit the patient, but remission of the treatment will, in most cases, result in a relapse. Pyorrhœa alveolaris, septic conditions of the nose, tonsils, pharynx, or vagina are causes which must be remedied before a permanent cure can be recorded.

In patients in whom the outstanding features are digestive disturbance and constipation, careful laboratory examination of the fæces will place in the hands of the clinician the information necessary for the breaking up of this vicious circle, and thereby pave the way to satisfactory thyroid medication.

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RE-EDUCATION OF THE VOICE AFTER OPERATION FOR INTRINSIC CANCER OF THE LARYNX.*

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The re-education of the voice, following operation for intrinsic cancer of the larynx, is carried out on simple and definite lines. The appearance and working condition of the larynx, after scar-tissue is established, are very similar to that which exists in cases of unilateral abductor paralysis of the cords. In only one case have I known the patient to be completely aphonic; some patients have voices that are rough and fairly resonant, others have high-pitched and semi-aphonic voices. The rough and fairly resonant voice is present in patients who have, no doubt, been attempting on fairly correct lines to improve their voices by experimenting in pitch; the high-pitched and semi-aphonic voices are present in patients who, I think, have not made any such attempt. Improvement in every case is soon apparent, progress is maintained for six to twelve weeks, sometimes longer, and a voice is established that is certainly useful, but, in my experience, it never approaches the excellence established in cases of unilateral abductor paralysis, in which a voice indistinguishable from the normal is often acquired. The reason for this is, I think, that between a healthy cord and one formed of scar-tissue there is not the same perfect middle line for good adduction as there would be with another healthy cord, though paralysed. In all cases the vocal treatment consists in developing the sterno-thyroid and sterno-hyoid muscles, so that the larynx is drawn down towards the sternum. This action brings about relaxation of the healthy cord; a deeper pitch is established, and adduction made more complete. In the completely aphonic case I have mentioned, no vibrations occurred until the larynx made a very decided descent.

When the larynx has been got well under control, the increase in resonance in the voice is very definite, and then the resonator positions of the main, compound, and subordinate vowel sounds are taught so that the voice has its greatest amount of overtones and harmonics. All this is very easy for the patient to learn. The chief difficulty in the re-education of the voice is the acquirement of real relaxation of the muscles above the larynx. There is nearly always a tendency to throat constriction, the result of speaking in the impaired or semi-aphonic voice prior to and after

* A paper read at a meeting of the Medical Society of London.

operation and before vocal treatment is begun. Any pronounced upper costal breathing aggravates this constriction, and the breathing must, therefore, be as much inferior lateral costal as possible. The air should be expelled and properly regulated by the action, in the steady but powerful contraction, of the abdominal muscles. Any overloading of the lungs, or a too powerful propulsion of air against the cord, will cause an unduly high pitch of voice, or make the cord give way, and good resonance will be weakened or disappear altogether. A very full description of the resonator positions of vowel sounds is set out in a paper which I had the honour of reading before the Medical Society of London on "Shell Shock Stammering and other Affections of Speech," and which is reported in Volume XL. of the Transactions of the Society and in THE PRACTITIONER for May, 1917.

I have been much impressed with the fact that some of the cases I have treated vocally have had a larynx indicating a bass quality of voice, and under treatment have produced a very deep bass voice, and yet they have told me, and I have recorded it in my notes of their cases, that they had previously sung in a tenor voice. I shall be very interested to hear whether Sir StClair Thomson attaches any importance to this fact in connection with the setting up of malignant disease; in that the vocal cords must have been put to an inordinate strain thereby, and friction surfaces in the cords most probably established. I do not pretend to have had a large experience of these cases, but I have never had a case of a woman sent to me after operation for intrinsic cancer of the larynx.

The practical suggestions that I would offer for re-education of the voice in these cases are as follows:—

1. Develop the sterno-thyroid and sterno-hyoid muscles, and keep the larynx low. Use a tongue-depressor to help to accomplish the descent of the larynx.
2. Make the patient speak as little as possible until a deep pitch of voice is established.
3. Let the breathing movement be inferior lateral costal, with a small but definite expansion, and let the motive power of the voice be the powerful contraction of the abdominal muscles.
4. When the larynx is established in its low position, instruct the patient that voice gets its chief resonance in the head and chest, and that the throat is a conduit pipe between them and must be entirely unconstricted, and also that free lip movement increases oral resonance.

If further vocal treatment is necessary, the resonator positions of vowel sounds and clearness of articulation generally should be taught. I think it safe to say that a really useful voice can be anticipated in practically all cases.

A patient of Sir StClair Thomson, after a very short instruction for his voice, was able to give evidence as an expert witness in the Law Courts on several occasions, and was always easily heard. Another of his patients

was a gentleman of over 70 years of age. His operation and re-education of his voice were very successful, and I was much struck with the quick way in which the necessary breathing movements were acquired. This patient writes to me as follows: "I gave a lecture to some 60 or 70 people just before Christmas, speaking for nearly an hour and a half without any undue effort or strain on the throat at all." I saw this patient last in July, 1915.

Another patient, also kindly sent me by Sir StClair Thomson, was operated upon by Sir Felix Semon ten years ago. I have not seen him for more than a year, but, when he spoke to me on the telephone about six months ago, I really believed it must be someone speaking for him, for the voice was so good. In a letter to me of the 5th instant, he says that the vocal exercises considerably improved his voice, but that it suffers when he has a cold or when he gets over-heated or excited. He also says he can make himself understood by telephone or otherwise, except in very noisy places. I did not see this patient until eight years after his operation.

The case of the completely aphonic condition, to which I have referred, was a patient of Mr. Herbert Tilley and Mr. Seccombe-Hett. Mr. Seccombe-Hett operated during the illness of Mr. Tilley. The extent of the growth necessitated a very free removal, and one cord was completely excised and the anterior third of the other. After twelve lessons a good and useful voice was established, and the patient, a schoolmaster, was able to teach a large form of boys with ease. The patient was shown in 1910 and 1912 at the Royal Society of Medicine.

Since writing the above I have received a letter from this patient who says as follows:—

> "I continued the exercises you gave me for some considerable time, and have never ceased to teach mathematics and physics to classes of 30 to 35, consisting of boys from 11 to 16 years of age. At present, my work extends to 20 periods of 50 minutes each per week. The time is not all spent in actual talking, but includes time given to laboratory demonstration. The laboratory is 20 yards long by 10 in width. I have had no serious illness during the past eight years, nor have I suffered from influenza as I used to do almost annually up to the time of the operation. Of course, I foolishly strain myself occasionally and get overtired, but have had no recurrence of my old trouble—the worst being a "dirty" throat, as I call it. My sister-in-law, who lives with us, insists on my adding that my voice is now much stronger than formerly."

The obvious conclusion, as regards these cases and other cases of throat affections, is that disregard of continued hoarseness or discomfort is extremely unwise.

NOTES ON THE COMMON CAUSES OF PERSISTENT HEADACHE AND THEIR DIFFERENTIAL DIAGNOSIS.

By KENNETH CLARKE, M.R.C.S., L.R.C.P.

Captain R.A.M.C.(T.F.).

Probably in the course of a single day's work there is no symptom which is brought more frequently to the notice of a general practitioner than that of headache. With the greatest regularity he is called upon to treat this symptom, to discover, and if possible to remove, the cause from which it springs.

The man with a busy practice, with long surgery hours, and with a crowded waiting-room is only too often tempted to treat the symptom and to disregard the cause. In 99 cases this is satisfactorily relieved, but it is the hundredth that brings disaster. A cerebral tumour has (as at the best of times it may) escaped notice, until it is too late to save the patient's life or his brain irreparable damage.

A patient, tired of his bottle of medicine or his little tablets, calls on a fresh doctor and finds that fitted with a brand new pair of lenses, life which for months had lost its sweetness, now is full of joy. The Christian Scientist for a small fee has shown that there is no weight or fulness in the neurasthenic's head, though many bottles full of medicine (but void of suggestion) had failed to bring this home. Of the ninety and nine cases which get relief, many are due to more or less obvious causes; a visual defect written across the patient's brow, a high temperature, a rash, or a septic throat points the way.

The colour and general appearance of the patient may suggest a diagnosis of chlorosis or one of the rarer blood conditions. An examination of the urine, the importance of which in all cases of persistent headache makes it one of the earliest parts of a routine examination, may reveal a nephritis, the first manifestation of uræmia, or even an unsuspected diabetes. It is well to bear in mind that one of the commonest types of persistent headache is that met with in any toxic or infective state, apart altogether from the specific fevers. The gastro-intestinal tract is perhaps the worst offender in supplying the necessary toxin, and certainly receives the most blame.

The whole subject of intestinal stasis has been so much under discussion that it is hardly necessary to describe the typical " static " subject, so frequently portrayed of late by the advocates of the various forms of treatment, operative and otherwise, designed to relieve it. Headache here depends upon the excess of toxic imports over toxic exports, and the appropriate treatment naturally aims at cutting off the supply at the source and promoting excretion of those already imported. Of the other toxins we must always bear in mind

those of alcohol, lead, and syphilis, all probably giving rise to the pain by their direct vasor-motor action on the cerebral or meningeal vessels. Little is necessary beyond mention for the two former, but of the latter much could be said.

One type of syphilitic headache, easily overlooked, is found early in the secondary stage, occasionally even before the appearance of the rash, so that unless some history is forthcoming it may be most difficult to identify, until some sign of organic disease appears.

The pain usually comes on in severe bouts of great intensity, spreading from the occiput to the vertex, frequently giving rise in the lucid intervals to great depression, and often insomnia. In the later stages of this disease headache is not usually so severe, and its cause not so difficult to find. The patient complains of a " general aching " in his head which increases towards evening, and here again may interfere with his sleep.

The general treatment is that appropriate to the condition, mercury, iodides, salvarsan, etc. It should be borne in mind that iodide, except in large doses, does not appear to have such beneficial effects upon head lesions as upon those in other regions; nevertheless, the larger doses should never be withheld in cases of severe headache. Some physicians recommend veronal, in five-grain doses one hour before bedtime, for the relief of this form of headache; it may even be necessary to perform lumbar punctures and find relief in the lowered tension of the cerebro-spinal fluid.

The headache associated with arterio-sclerosis is more readily recognized, and should always be thought of when the patient's age lies in the fifth or sixth decade. His pain is then rarely severe, but is constant and aggravated by stuffy atmospheres. The arteries of the wrist will in all probability give some indication of the general condition, and a high blood-pressure recorded by the sphygmamometer, or estimated by obliterating the radial pulse with digital pressure, will at once lead one to suspect the root of the trouble to lie in the thick and rigid vessels. On making further examination, the heart will usually be found to have become hypertrophied and the urine to contain traces of albumen.

The general condition of people suffering with arterio-sclerosis is more or less characteristic; their mental powers deteriorate, their gait loses its spring, and their memory becomes uncertain; moreover, if they consult their doctor on account of their headache, they will usually complain of tinnitus, or occasional attacks of vertigo. The exhibition of iodides and bromides is the prescribed therapeutic treatment for this condition; perhaps the mixture of potassium and sodium iodides retards most effectively the progress of the disease. Open air, with light diet and careful attention to the bowels, will, in all probability, give the patient more relief than he will derive from drugs.

It may be well to mention here that allied condition known as hyperpiesis, giving ise, as it does, to a headache of a very similar kind. Roughly speaking, it may be recognized by the high blood-pressure unaccompanied by other decided physical signs (no albumen,

etc.), the arteries themselves showing little thickening of their walls. Administration of sodium nitrite in quarter-grain doses at regular intervals is, undoubtedly, the most effective form of treatment.

Perhaps, in many ways, the most perplexing form of headache to deal with from a busy practitioner's standpoint is that associated with neurasthenia. Its diagnosis is not always difficult; but in nine cases out of every ten there is associated with it some minor organic defect, and whereas the headache is so often attributed to the low state of health, yet it is, in fact, this same low state which enables a slight organic lesion to give rise to symptoms when in an ordinary healthy subject it would remain quiescent.

Thus neurasthenic patients very frequently show some symptoms of eye-strain; a minute error of refraction grasps the opportunity of making itself evident, and it may here be remarked that it is the slight errors of refraction rather than the gross ones that are associated in one's mind with frontal or occasionally with occipital headaches. Slight hypertrophy of the turbinates or a small deviation of the septum, themselves often reflex causes of severe headache, become manifest to a much greater extent in the neurasthenic, though their variation from the normal may be very slight. Again, the close association between neurasthenia and chronic intestinal stasis will sometimes make it difficult to decide whether the headache is the result of toxic absorption, or whether it is a neurasthenic headache, the neurasthenia itself being secondary to the chronic intestinal stasis.

It is a remarkable fact that a very large proportion of people suffering from what may be described as typical "neurasthenic" headaches are also subjects of chronic stasis. These patients must undergo a prescribed course in order to prevent further absorption, and it is a notorious fact that they will often be temporarily relieved, and in fact cured, for a more or less definite period of time with one after another of the different systems of treatment—plombia, diet, massage, electricity, spa, paraffin, abdominal belts, or even short-circuit and colectomy; then having remained in an apparently normal condition for a varying period of time, they relapse and are very rarely relieved a second time by the original form of treatment. However, there are many forms to choose from, and the chances are that a fresh treatment will again have the effect of giving him temporary relief.

The neurasthenic complains more of a sensation of pressure than of actual pain. He will often describe it as a disagreeable feeling of fulness or of weight, and refer to the vertex. On examination, there will often be found definite tenderness of the scalp, which can be demonstrated by pinching up a fold between the finger and thumb, or by making gentle traction on the hair. The tenderness does not follow the course of a scalp nerve, nor is the underlying skull tender to deep pressure, as in the case of inflammatory troubles; moreover, it is not accompanied by any vaso-motor disturbances, the blood-pressure and the pulse varying little usually from their normal.

Having once established the diagnosis, the case must be considered

on its own merits as to treatment. When there is an associated condition of stasis, this, of course, must influence the treatment. When eye-strain or small defects of the nose or its appendages have become manifest these must necessarily be dealt with, and in that way a large proportion of neurasthenic headaches is relieved, the element of suggestion probably entering in no small degree into the treatment, and with the removal of any organic irregularity many patients will find a cure, possibly a permanent one.

In a certain number of people in whom no organic lesion has been brought to light as the result of their lowered state of health, the use of suggestion treatment is still valuable. In these cases massage, vibration, cold douches, and other methods will also often produce their desired effect.

In those cases of very severe headaches produced by shell-shock and similar traumatic causes, cold water douches and massage have been found most effective forms of treatment.

As to drugs (and it is upon these that the practitioner, particularly in poor class practice has largely to rely both for their therapeutic value and for their aid to suggestion), perhaps the most valuable of all is valerian, either the valerianate of zinc and iron given in the form of a pill or the ammoniated tincture of valerian, usually employed in a mixture which also contains some stimulant such as strychnia or else in combination with some sedative—bromide of ammonium, etc.

Valerian will often act like a charm in these cases, in spite of the libellous statements made by those people who, after years of careless dispensing, tell us that they do not believe in drugs! Salicylates, phenacetin, and their allies should be strictly avoided, but simple tonics may often be employed with great advantage, and it should at the same time be impressed upon the patient that their beneficial effects will largely remain latent unless their use be associated with regular outdoor exercise and careful attention to the bowels. Sometimes, when other methods have failed, the condition is relieved by a complete change of air and surroundings, wherein again the element of suggestion plays its part. Relief obtained in this way is rarely permanent, whereas drugs may be employed over a long period with progressively decreasing doses and given at less frequent intervals. The headaches of neurasthenia occasionally recur with a periodicity suggestive of migraine. This is particularly the case in those persons who are also victims of intestinal intoxication.

Usually, however, migraine exhibits such characteristic features that it is easy to recognize. This complaint also is very frequently accompanied by some, perhaps slight, organic defect, which is thought reflexly to " fire off " an attack. Eye-strain, abnormal conditions of the nose, naso-pharynx, or of the uterus and its appendages are very often held to be responsible for typical migraine, and certain it is, that in many cases the successful treatment of these reflex causes has the most beneficial effects upon the migraine.

The hereditary nature of the disease, the periodicity of the attacks, the prodromata, hippus, and the visual phenomena usually make

the diagnosis easy. Nausea and vomiting are important symptoms in this complaint. Vomiting, when it occurs, is likely to relieve the attack, but is unlikely to occur unless the stomach is full at the time.

These same symptoms, however, occurring in another important class of headaches, viz., cerebral tumour, appear to have no relation to food and may therefore be valuable symptoms in the differential diagnosis; moreover, the headache associated with intra-cranial disease—tumours, abscesses, and meningitis, is deeply seated and most intense, giving rise to a sensation that the skull must burst. This pain is usually throughout the head, sometimes frontal or behind the eyes and occasionally occipital when the tumour occupies the posterior fossa.

Should the tumour or abscess involve the dura or bone, there will be tenderness on deep pressure, not to be confused with the superficial tenderness of neurasthenic headaches, but easily confused with tuberculous or syphilitic lesions of the skull.

The typical "cerebral vomiting," the great intensity of the pain, the uncertain symptom of optic neuritis, and, in some cases, the subnormal temperature, all help in making the diagnosis; moreover, in this latter condition, the pain is more frequently unilateral, and is often fan-shaped. It is obvious that the value of an early Wassermann reaction can here scarcely be overestimated.

The question of tuberculous meningitis and cerebro-spinal meningitis should not be lost sight of. More particularly it must be remembered that the latter disease is likely to remain with us now, and to appear not only more frequently in epidemics but that sporadic cases are sure to crop up more than was the case a few years ago. Unless these follow the stereotyped lines, they are only too likely to be overlooked; especially is this so in those milder cases which are now known to exist. Headache and pyrexia, accompanied by stiffness in the occipital or upper cervical region or retraction of the head, with a positive Kernig's sign, or any of the new signs recently evolved for the detection of this disease, should always suggest the advisability of consulting with a bacteriologist.

The part played by eye-strain in the headaches of neurasthenia and migraine have been mentioned, but this by no means exhausts the account of headaches due to these causes.

Sir Lauder Brunton once wrote that 90 per cent. of all headaches were due to eye-strain and the remaining 10 per cent. were made up of those due to defects of the nose, throat or teeth.

It is possible that in this estimate were included those individuals referred to in the consideration of neurasthenia and migraine, and, even so, perhaps this eminent physician was purposely stating the highest figure in order to emphasize what, in every practitioner's experience, is by far the commonest cause of headache sufficiently severe for the patient to consult his doctor.

As is above mentioned, it is the slight errors of refraction which, having caused the patient to over-exert his ciliary muscles for a long period of time, are the worst offenders, often giving rise to an amount

of pain which would appear to be out of all proportion to the nature of the error. The gross lesions are usually early detected and corrected, or are sufficiently pronounced to cause the patient to abandon his attempt to overcome the defect by his own exertions.

Many persons consulting their doctor on account of headache will appear surprised or even a little hurt when it is suggested to them that their eyes are at the root of the trouble; nevertheless, when the slight error of refraction is corrected by an oculist, the troublesome symptom vanishes. It may be well here to emphasize the great importance of having such a patient examined only by an ophthalmic expert.

It is a common experience of all medical men that a patient whose headache has been correctly attributed to eye-strain, and who, having had his vision tested and glasses supplied, derives no benefit so far as his pain is concerned. One may often be tempted in these cases to look elsewhere for the cause of the headache, whereas, if the patient is seen by an oculist, a very small degree of astigmatism which may easily be overlooked is found to be responsible for all the discomfort. A large number of physicians attach very great importance to minor nasal and dental defects in the production of headaches, and certain it is that no routine examination of a patient suffering in this way should omit a very careful inspection of the mouth (for dental caries), the nose, ear and throat. A mouth-breather is notoriously subject to headaches. Decaying teeth, apart from their action in producing digestive disturbances and their accompanying head pain, are themselves sufficient cause to produce decided symptoms.

Whilst discussing the part played by the nose and its appendages, it is right to mention here that headache, usually an intense frontal headache, is frequently the first warning of frontal sinus disease. It has not been thought worth while to include in this list all those transient causes of headache, such as often appear during the first few days of stay in a fresh climate, in strange surroundings, or often such as are produced by undertaking new work. It is rare to be consulted about them, since they rapidly disappear as the patient accustoms himself to his fresh environment.

There is another class of headache caused by tight lacing, tight collars and tight hats; particularly, in the latter class, should be mentioned the modern army cap. All these tend to produce congestion of the cerebral vessels, resulting in a feeling of fulness rather than of pain and occasionally producing epistaxis. The only importance of this condition (which can be readily cured by removing the cause) is that it may occasionally suggest the early manifestation of mitral disease; early examination of the cardiac area and the urine will, however, lead one to make the correct diagnosis.

Sunstroke is not often missed. The pyrexia or hyper-pyrexia, together with the intense pain often occipital or upper cervical, might be thought easy to confuse with cerebro-spinal fever. Absence of any positive Kernig's or Babinski's sign, taken with the history, is usually sufficient to prevent such an error.

SOME TIME-FACTORS IN DIAGNOSIS OF SYPHILIS —A PLEA FOR THE IMMEDIATE WASSERMANN.

By JOHN PERRY WALKER, M.B.

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Early diagnosis of syphilis is all important. The discovery of Schaudinn's spirochæte settles the diagnosis. Unfortunately this spirochæte is not always found on a first examination, even in a clinically typical case. The absence of the spirochæta pallida does not enable one, however, to exclude a syphilitic infection, although its presence is proof positive of the syphilitic infection.

A patient may be informed that the report of the pathologist after his examination for spirochæta pallida comes back: "Sp. Pall. not detected." As a result of this negative information he often decides that the absence of the spirochæte is "good enough for him," and as a result will not undergo the inconvenience and expense of further examinations; and, as a natural sequel, will not have proper and adequate anti-syphilitic treatment. For this reason I would strongly urge all "venereal" patients to have a Wassermann reaction performed at the same time as the search for spirochæta pallida. My reasons for urging this course can be understood from a perusal of the following statistics.

The figures in all these tables were collected from a consecutive series of 500 venereal cases referred to me for diagnosis, and on whom a Wassermann reaction was carried out, at the Central Venereal Hospital, Lichfield, 1915. The serum reaction was either the origina one of Wassermann or the modification of Stern. The percentages are to nearest whole number.

TABLE I.

Length of Time since Patient noticed any Venereal Sore to Performance of Wassermann.

Weeks.	Positive.	Doubtful.	Negative.	Total.	Per cent. Positive.	Weeks.
0–1	3	7	13	23	13	0–1
1–2	11	17	15	43	24	1–2
2–3	43	25	13	81	53	2–3
3–4	41	10	21	72	57	3–4
4–5	26	11	8	45	58	4–5
5–6	23	9	12	44	52	5–6
6–7	12	2	3	17	70	6–7
7–8	19	4	4	27	70	7–8
8–12	28	3	10	41	68	8–12
12–16	15	5	3	23	65	12–14
16–24	9	1	4	14	64	16–26
24 onwards	25	4	3	32	78	24 onwards

TABLE II.

Length of Time from Contagion (presumed) to Appearance of any Venereal Sore.

Weeks.	Positive.	Doubtful.	Negative.	Total.	Per cent. Positive.	Weeks.
0–1	71	30	53	154	46	0–1
1–2	42	21	16	79	53	1–2
2–3	27	10	10	47	57	2–3
3–4	26	13	10	49	53	3–4
4–5	11	3	2	16	60	4–5
5–6	16	3	2	21	76	5–6
6–8	8	2	2	14	67	6–8
8–12	9	0	3	12	75	8–12
12 onwards	6	3	0	9	67	12 onwards

TABLE III.

Length of Time from Contagion (presumed) to Performance of Wassermann.

Weeks.	Positive.	Doubtful.	Negative.	Total.	Per cent. Positive.	Weeks.
0–3	7	14	23	44	16	0–3
3–4	24	16	20	60	40	3–4
4–5	24	17	20	61	39	4–5
5–6	23	14	15	52	44	5–6
6–7	17	8	9	34	50	6–7
7–8	31	8	10	49	63	7–8
8–12	49	13	18	80	61	8–12
12–16	11	1	2	14	78	12–16
16 onwards	28	6	7	41	68	16 onwards

A perusal of the above statistics shows, amongst other things :—

I. A Wassermann reaction is positive in a considerable percentage of cases much sooner after the detection of any venereal sore by the patient than is generally supposed.

No less than 24 per cent. gave a positive reaction in second week.

II. Out of 154 patients who noticed the appearance of any venereal sore within eight days from presumed infection, 46 per cent. ultimately gave a positive reaction.

III. A positive Wassermann reaction may be obtained very soon after the presumed contagion; 16 per cent. within three weeks; 40 per cent. in four weeks.

IV. All these cases, it must be understood, were venereal cases, and undoubtedly many must have had syphilis earlier in life and the examination of serum revealed the taint.

V. In a venereal case it is never "too early for a Wassermann."

AN EXCEPTIONAL RECOVERY FROM CEREBRO-SPINAL FEVER.

By DAVID SMITH, M.D., Temp. Capt. R.A.M.C.

During the past two years I have been engaged investigating and treating cases of cerebro-spinal fever, and although many cases recover, which at first have a serious prognostic outlook, yet there has been no case in my experience which from the beginning looked so hopeless, and in the end proved so successful, as that of which I give a *résumé*.

History.—Soldier, æt. 19 years, previously healthy, developed German measles of a mild character on October 10, 1918. He made a good recovery and was convalescent, when, on October 22, during the recent epidemic he developed influenza with acute broncho-pneumonia in both lungs. He had pyrexia and all the toxic symptoms so generally recognized as concomitants of severe influenza with pulmonary complications. He was recovering from this, though greatly reduced in health, when, at about 10 a.m. on November 13, he developed a temperature of 105° and severe vertical headache; within eight hours he became unconscious, and the following symptoms supervened:—

Neck Rigidity.	Retraction of Head.	Posture.	Pupil Reflex.	Kernig Sign.	Rash.	Knee-jerk.
+ +	—	Right lateral.	Normal.	—	Purpuric + +	Active

Vomiting.	Cerebration.	Conjunctivitis.	Cyanosis.	Photophobia.	Incontinence.
+ + +	Unconscious.	+ +	+	+	+

Lumbar puncture was performed without an anæsthetic; the fluid was under very high pressure, and positive for cerebro-spinal fever, the coccus proving to be Type 2, on agglutination.

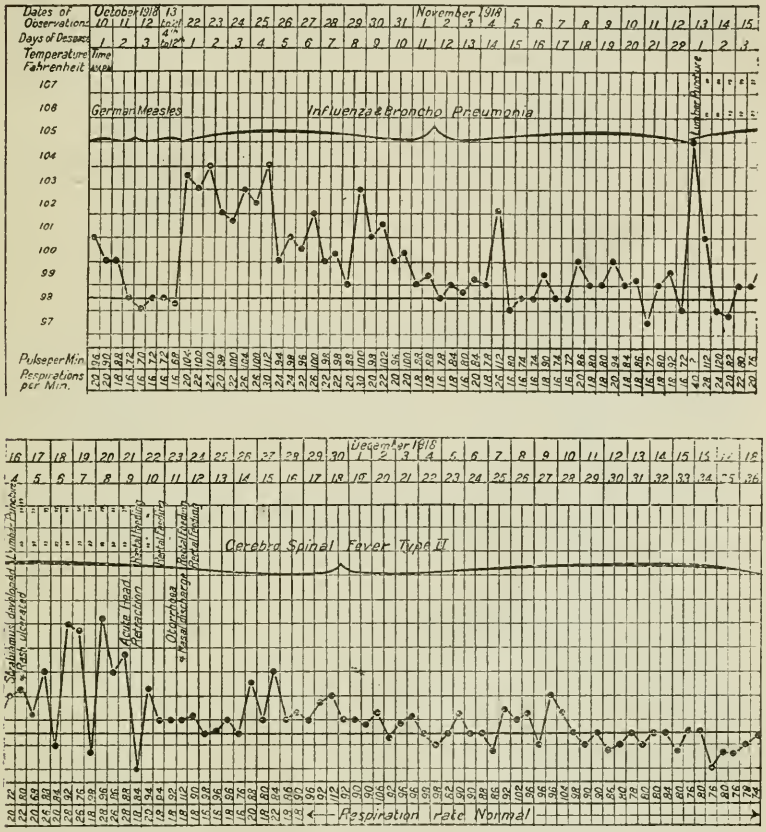
Bacteriology.—Cultures from the cerebro-spinal fluid remained positive for four days; those from the purpuric rash, sputum, and naso-pharynx proved positive, the type of coccus being the same as that of the cerebro-spinal fluid. Cultures from the conjunctiva, urine, and blood were negative.

Treatment.—Lumbar puncture was performed without an anæsthetic each day for the first ten days, during which time 615 cc. of fluid were withdrawn and 300 cc. serum were given. Polyvalent serum was used for the first three days and afterwards Type 2 serum.

Progress.—Patient remained unconscious for seven days and lost flesh rapidly. Strabismus developed on the fourth day, and the rash all over the body ulcerated. Head retraction, absent at the onset, became so acute on the ninth day that he was unable to swallow liquids; at the same time he developed profuse otorrhœa and purulent nasal discharge.

Rectal feeding was resorted to for four days, and then the retraction improved enough for him to be given brandy and milk, with other suitable liquids. He began gradually to improve; with tonic treatment, good feeding, and careful nursing, he is now well. His weight, which went as low as 76 lbs., has become 118 lbs. (weight before admission, 128 lbs.).

Special Points.—(1) Purpuric rash going on to ulceration and from which a positive culture was obtained. (2) Recovery after four days' rectal feeding. (3) Complications which developed during the disease entirely



clearing up. (4) No anæsthetic given for lumbar puncture. (5) Absence of retraction of head and Kernig's sign at the onset.

The severity of this attack with an uncomplicated recovery make me think it worth while bringing the record before any who may be interested.

Much of the success is attributable to the untiring energy with which Staff Nurse D. D. James, Q.A.I.M.N.S.R., and Miss L. M. Elliott, V.A.D., attended to the case, and my thanks are due to them

Practical Notes.

LANOLINE.

Bonnet draws attention to the fact that lanoline does not appear to be used as much as it deserves to be. The following prescriptions will be found very useful :—

Lanoline cream.

Castile soap	100 g.
Rose-water, Lanoline, Glycerine — of each	800 g.
Essence of neroli	q.s.
Essence of lavender	q.s.
or—	
Soft paraffin (white)	420 g.
Paraffin	30 g.
Lanoline	120 g.
Water	180 g.
Vanilline	0·50 g.
Absolute alcohol	q.s.

Lanoline lotion.

Lanoline	15 g.
Soap in powder	1 g.
Borax	1·50 g.
Rose-water	150 g.

Dietrich's "Lait de Lanoline."

Soap in powder	20 g.
Borax	10 g.
Water	70 g.
Cacao butter	30 g.
Lanoline (anhydrous)	70 g.
Rose-water	800 cc.

Incorporated with cacao butter, lanoline makes an excellent basis for suppositories :—

Hamamelin (dissolved in a little water)	1·75 g.
Lanoline	9 g.
Cacao butter	90 g.

for 25 suppositories.

Mercury	0·03 g.
Lanoline	0·50 g.
Vaseline	0·50 g.
Cacao butter	4 g.

to make one suppository.

Adrenalin	1 mg.
Boric acid	2 mg.
Distilled water	0·029 g.
Lanoline	0·096 g.
Cacao butter	1 g.

for one suppository.

Three parts of lanoline to one of paraffin form a useful basis for ointments

For pomades, the hydrated lanoline is preferable.

Formol	100 g.
Glycerine	180 g.
Hydrous lanoline	1,000 g.

For preventing chilblains on feet:—

Anhydrous lanoline	20 g.
Water	2 g.
Mustard flour	0·40 g.

In the preparation of creams a mixture of lanoline and liquid paraffin is recommended. Water can be added.

Anhydrous lanoline	15 g.
Water	5 g.
Liquid paraffin	3 g.

A soothing application for acne is:—

Liquid paraffin, Lanoline of each	40 g.
Liniment. Calcis	80 g.
Perfume	q.s.

(*Journ. de Méd. et de Chir. prat.*, December 10, 1919.)

TREATMENT OF LUPUS.

Brocq points out, in the course of "Some practical remarks on the subject of new methods of treatment of lupus vulgaris," that there is no specific treatment for this disease, or rather, that there is no one particular treatment applicable to every case. Neither the light-treatment, Kromayer's lamp, the X-rays, the high-frequency spark, carbonic acid snow, nor injections of tuberculin, nor of arsenobenzol can be looked upon as the only treatment. Brocq declares, after many years' experience, that it is necessary to be eclectic in treating lupus. He judges the treatment required from the point of view of the localization of the affection and from that of its objective varieties.

Lupus in the vicinity of the orifices of the face should be treated by cross-cut linear scarifications. The nasal fossæ must be examined and treated with the greatest care by scarifications or by scraping, followed by cauterization. It is advisable, after scarification, to apply permanganate of potash, chloride of zinc, or "les deux crayons." A dressing of mercurial plaster is applied after all bleeding has ceased.

Lupus of very small extent on the face, on the limbs, and on the trunk should be excised. Moderate lupus of these regions is susceptible to light-treatment or scraping, followed by cauterization and iodoform dressings. The scraping must be repeated until no more lupomata appear in the scar.

Lupus on mucous membranes requires actual cautery or scraping and subsequent cauterization; for the eyelids, scarification is the method of choice.

Brocq distinguishes three varieties. Of these the ulcerated form is often the least serious, and treatment should begin by applying light caustics, the best being mercurial plasters or permanganate of potash. Recourse to other methods of treatment should only be adopted if these fail in effect.

Rapidly spreading forms must be treated by scarification without delay. Turgid forms, with considerable thickening and infiltration of the tissues, should be treated with injections of calomel or by some method of radio-therapy. The infiltration is lessened by such means, and then the ordinary methods can be used.—(*Journ. de Méd. et de Chir. prat.*, February 25, 1919.)

Reviews of Books.

The Soldier's Heart and the Effort Syndrome. By THOMAS LEWIS, M.D., F.R.C.P., F.R.S., D.Sc. London: Shaw and Sons. Pp. 144. 7s. 6d. net.

IN the preface to this work we are told: "It is primarily written with the intention of helping medical officers of recruiting, discharging and pensioning boards, and medical men in charge of patients." We may say at once that the author has succeeded.

The index is both complete and excellently arranged.

The first three chapters treat of the "Effort Syndrome," its symptoms and signs contrasted with those of heart disease, and the etiology of the "Effort Syndrome" and of heart disease in soldiers; 4 and 5 deal with diagnosis, prognosis and treatment, while in the following chapter faulty methods of recruiting and faults in treatment are clearly indicated. We would call special attention to the Appendix, in which an excellent method of observation of the patient and subsequent examination are set forth

The author evidently assumes a good working knowledge of cardiac affections on the part of the reader, and we suggest that those not fully acquainted with the more modern methods in diagnosis to fill up their deficiencies in this respect before seriously taking up the study of this book.

Dr. Lewis deprecates the idea that strain can of itself cause damage to a hitherto healthy heart. Investigation has shown the existence of some congenital defect or the history of an infection such as rheumatic fever, tonsillitis, and, we may add, "growing pains." After the age of 40 the syphilitic factor has to be considered.

We cordially commend the book to those interested in the topics discussed, not only for careful study, but for the purpose of ready reference. We venture to say that, had it been possible for the book before us to have been available at the earlier stages of the war, many unfortunate mistakes might have been avoided.

Advanced Suggestion. By HAYDN BROWN, L.R.C.P., etc. Pp. 342. London: Baillière, Tindall and Cox.

DR. HAYDN BROWN prefers the term neuroinduction to suggestion. By this he means "neurone induction, both of brain and body." By neuro-induction he enables "'repressed' conscious ideas to become still more conscious," and he "effects normal association to the level of the supra-conscious if necessary." He deems the subconscious to be supraconscious instead of unconscious, and he considers that what has been spoken of by authorities as the unconscious of the subconscious has been a contradiction amounting to absurdity in the light of the evidence of his pages. It is all rather puzzling, but very erudite. Dr. Brown's opportunity has come many times after a patient has "seen all the best men," and these opportunities have embraced cases of dementia præcox, paranoia, prolapsus ani, varicose veins, skin disorders, and morbid growths. It is a wonderful book!

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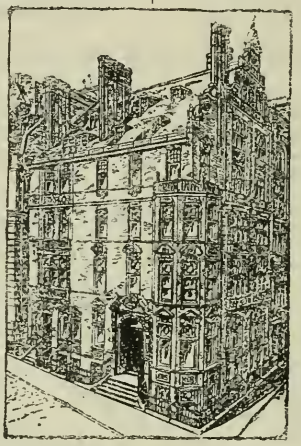

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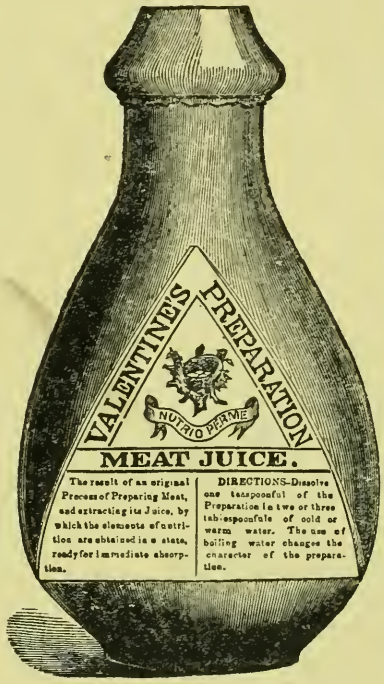
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